



# *Employment and Economic Impact of Container Deposits*

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New York

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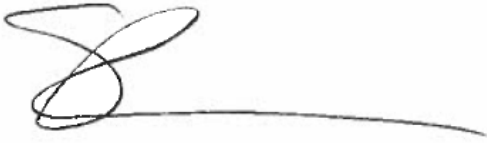
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# Executive Summary

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The deposit return system for beverage containers in New York was enacted in 1982 and includes containers of nearly all materials for soft drinks, water, beer and wine products.<sup>1</sup> All containers of these types are required to carry a deposit of 5 cents and be clearly labelled accordingly. The deposit return rate across the system for all materials was 65% in 2017.<sup>2</sup>

The deposit return system directly employs 3,275 full-time equivalent (FTE) employees, who are engaged in different parts of the system, including: administration, collection and counting, sorting and processing material. Additionally, there are 2,451 full-time equivalent jobs that are indirect or induced by the existence of the deposit return system. Therefore, New York's current deposit return system creates 5,726 jobs through direct, indirect and induced effects of its existence.

The jobs calculations above do not include the vast network of informal "canners" or scavengers who collect and return deposit containers as an occupation. The number of individuals in this role is difficult to determine. This report estimates that there are approximately 4,000 to 8,000 canners in New York City making their living by collecting deposit containers.

While the purpose of the deposit return system is to incentivize the return of containers, there is an economic benefit created by deposits that are unredeemed. In New York, the value of these unredeemed deposits was \$134 million<sup>3</sup>, 80% of which goes to the State, and 20% to the beverage industry. The State dedicates \$15 million annually to the Environmental Protection Fund and the remaining amount to the State General Fund which in 2016 equated to \$92.2m.<sup>4</sup>

In addition to the economic value of the jobs created and the deposits paid, the value of the commodified material captured by this system is valued above \$55 million. Materials coming from the deposit return system are of higher quality, cleaner and better sorted than those in mixed recycling or curbside systems, which garners a higher market value.

Based on the estimates of FTE jobs created across the State, the Gross Value Added (GVA) to the economy is approximately \$272 million, with the New York State government recovering \$22 million in income tax on the jobs associated with the deposit return system. A summary of the economic impacts is included in Table E 1.

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<sup>1</sup> Bottle Bill.org – New York - <http://www.bottlebill.org/legislation/usa/newyork.htm>

<sup>2</sup> Bottle Bill.org – New York - <http://www.bottlebill.org/legislation/usa/newyork.htm>

<sup>3</sup> 2016

<sup>4</sup> Bottle Bill.org – New York - <http://www.bottlebill.org/legislation/usa/newyork.htm>

**Table E 1: Economic Impact Summary of Current Deposit Return System**

<b>Benefit</b>	<b>Value</b>
<b>Direct Jobs Created</b>	3,275 FTE
<b>Direct, Indirect and Induced Jobs Created</b>	5,726 FTE
<b>Canners – Informal Collectors</b>	4,000-8,000 FTE (NYC only)
<b>Commodity Value of Deposit Material</b>	\$55 million
<b>Unclaimed Deposits</b>	\$134 million
<b>Gross Value Add</b>	\$272 million
<b>Tax Revenue</b>	\$14 million

Source: Eunomia Calculation

New York’s deposit return system has provided significant economic impact as well as incentivized the increased recycling of beverage containers across the state. A modernized system with an expanded scope and increased deposit level could amplify the economic benefit and create 4,415 direct FTE jobs in the State. Additional associated economic benefit includes a \$374 million GVA, including \$31 million in income tax revenue. Table E 2 summarizes the economic benefits associated with a modernized deposit system.

**Table E 2: Economic Impact Summary of Modernized Deposit Return System**

<b>Benefit</b>	<b>Value</b>
<b>Direct Jobs Created</b>	4,415 FTE
<b>Direct, Indirect and Induced Jobs Created</b>	7,803 FTE
<b>Commodity Value of Deposit Material</b>	\$77 million
<b>Unclaimed Deposits</b>	\$179 million
<b>Gross Value Add</b>	\$374 million
<b>Tax Revenue</b>	\$31 million

Source: Eunomia Calculation

The deposit return system in its current form has been successful in its goals to reduce litter, ease the burden on solid waste facilities and increase recycling. Expanding the scope of the deposit return system as well as the deposit value would only serve to further its goals and provide additional economic and environmental benefits across New York State.

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## 1.0 Study Methodology

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This report was compiled to document the economic impacts of the New York State deposit return system. Facts and figures throughout were determined through conversations with private organizations working across the system. Estimates of employment figures, details of operations and associated economic impacts were developed through personal conversations with collectors, redemption centers, administrators and others associated with the deposit return system in New York. For the purposes of this report, those parties will be kept confidential to protect the commercial interest of their businesses.

## 2.0 New York's Deposit Program

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New York instituted a bottle deposit system in 1982, which took effect the following year, through *The New York State Returnable Container Act*. The intention of this law was to reduce litter, ease the burden on solid waste facilities and increase recycling activities.<sup>5</sup> This law established a 5¢ deposit on carbonated soft drinks, soda water, beer and other malt beverages, and wine products in plastic, aluminum, steel, or glass containers less than 1 gallon in size. Water that does not contain sugar was added to the scope of the deposit program through an amendment to the law in 2009.<sup>6</sup>

The law has been relatively successful in its aims, reducing roadside litter by 70 percent and helping to recycle 5.1 billion plastic, glass and aluminum containers in 2016 at no cost to local governments.<sup>7</sup> Periodic updates in 1998, 2009 and 2013 sought to further refine language to improve implementation and enhance compliance.

New York's bottle deposit program has led to a fairly consistent redemption rate since its conception, at 65% in 2017.<sup>8</sup>

New Yorkers also have the option to recycle containers through curbside programs, which are run by municipalities as a result of the New York State Solid Waste Management Act of 1988, requiring municipalities to require the separation and segregation of recyclable or reusable materials from

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<sup>5</sup> "New York's Bottle Bill" NYS DEC website. <https://www.dec.ny.gov/chemical/8500.html>

<sup>6</sup> Bottle Bill.Org – New York. <http://www.bottlebill.org/legislation/usa/newyork.htm>

<sup>7</sup> "New York's Bottle Bill" NYS DEC website. <https://www.dec.ny.gov/chemical/8500.html>

<sup>8</sup> Ibid.

solid waste by no later than September 1, 1992.<sup>9</sup> However, when residents use the curbside program for deposit-bearing containers, they forfeit the deposit refund.

## 2.1 Coverage

The New York bottle deposit program is fairly comprehensive and applies to all beverages intended for use or consumption in the State of New York, regardless of the country or state of manufacture. All individual, separate, sealed glass, metal, aluminum, steel or plastic bottles, cans or jars less than 1 gallon (or 3.78 liters) are accepted, but the type of drink determines whether the container will be required to carry a deposit or not. The full list of what is covered and what is exempt is as follows:

What's covered:

- Carbonated Soft Drinks
- Including Sparkling Water, Carbonated Energy Drinks, Carbonated Juice (anything less than 100% juice, containing added sugar or water)
- Soda Water
- Beer and Other Malt Beverages
- Mineral Water - Both carbonated and non-carbonated mineral water
- Wine Products
- Water which does not contain sugar, including flavored or nutritionally enhanced water

What's not covered:

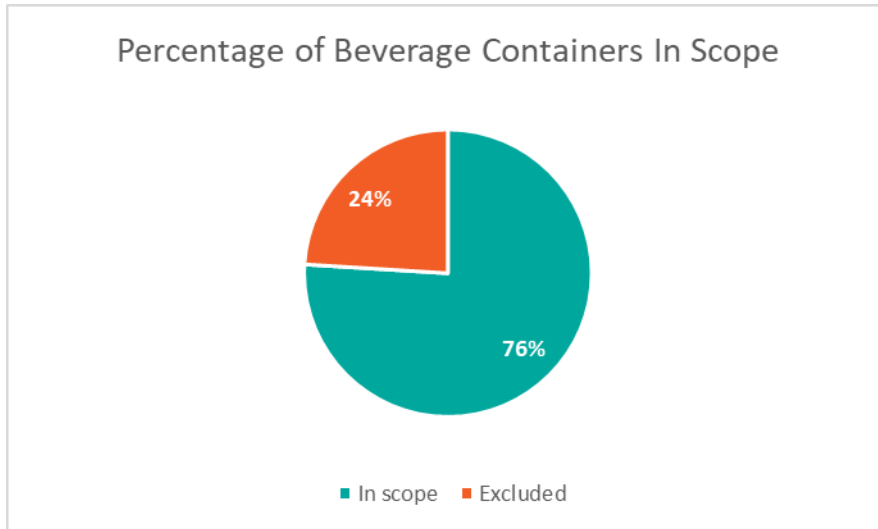
- Milk Products
- Wine
- Spirits (Liquors)
- Hard Ciders
- Tea
- Sports Drinks
- Juice
- Drink Boxes
- Waters Containing Sugar

Figure 2-1 illustrates the percentage breakdown of in scope containers, based on beverage sales. Currently 76% of beverages sold fall into the categories covered by the deposit return system.

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<sup>9</sup> "DEC Announces 25th Anniversary of New York's Recycling Laws." NYS DEC. September 1, 2017. <https://www.dec.ny.gov/press/111296.html>

**Figure 2-1: Percentage of Beverage Containers in Scope in Current Deposit Return System**



*Based on sales data from "2015 Beverage Market Data Analysis," The Container Recycling Institute, 2017.*

## 2.2 System Overview

No one shall sell or offer for sale a beverage container in New York unless a deposit has been collected by a deposit initiator that is registered with the New York State Department of Taxation and Finance. A deposit initiator (the first bottler, distributor, agent or dealer to collect a deposit<sup>10</sup>) must also arrange for the pick-up and processing of empty containers and pay dealers (any person, firm or corporation who engages in the sale of beverages in beverage containers to a consumer for off-premises consumption in New York State<sup>11</sup>) and redemption centers for the deposits and a 3.5 cent<sup>12</sup> handling fee on each empty beverage container. The operation of the system is illustrated in Figure 2-2.

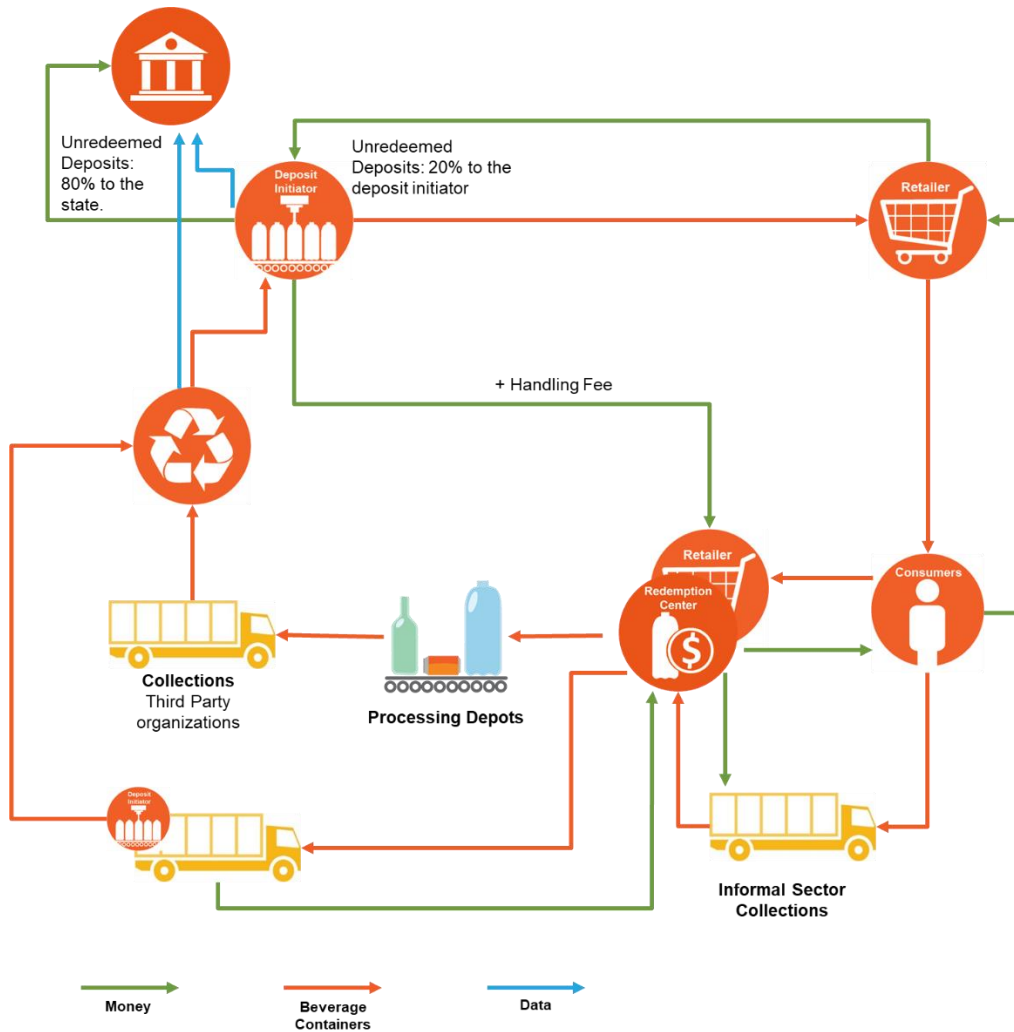
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<sup>10</sup> New York State Department of Environmental Conservation – “Frequently Asked Questions About the Bottle Bill” - <https://www.dec.ny.gov/chemical/57687.html>

<sup>11</sup> New York State Department of Environmental Conservation – “What does a dealer do?” <https://www.dec.ny.gov/chemical/59629.html>

<sup>12</sup> The NY handling fee has increased multiple times and is now the highest in the US. The current fee of 3.5 cents was established through a 2009 amendment to the law. <http://www.bottlebill.org/legislation/usa/history/nyhis.htm>

Figure 2-2: System Operation Overview



## Redemption Network

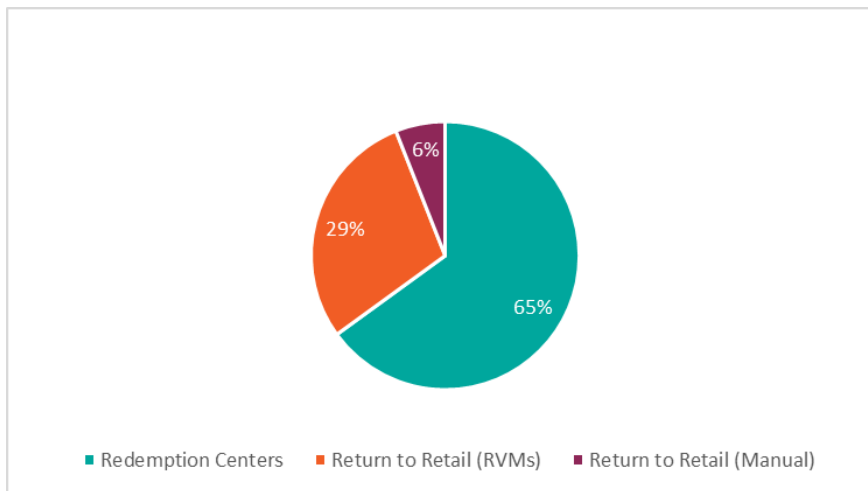
- **Redemption Incentive – The Deposit:** The container deposit of 5 cents is paid to the deposit initiators by the dealers and then by the customer when they purchase the drink. When the empty container is returned, the deposit is refunded. Then, in turn, the dealer reclaims the deposit it paid from the deposit initiator.
- **Return Infrastructure Payment – The Handling Fee:** Dealers and redemption centers are compensated for their role in providing redemption infrastructure through a handling fee. 3.5¢ is paid by the deposit initiators to the dealers and redemption centers for every container redeemed.

All dealers must accept containers and pay refunds during all normal business hours, creating a convenient redemption infrastructure.

## Logistics

- Distribution – **Filled containers**: The container is manufactured and shipped to dealers in New York by brand owners. Consumers purchase beverages in deposit containers for consumption.
- Collection – **Empty Containers**:
  - Consumers have options on how to redeem their deposit containers. In 2016, return of containers was distributed as shown in Figure 2-3.

**Figure 2-3: Redemption Location Usage Distribution**



*Eunomia Calculations.*

- While dealers are required to accept containers and provide refunds on deposits during their normal business hours, much redemption is done at redemption centers. Most retailers that do collect a significant number of containers do so through reverse vending machines (RVMS).
- Third-party pickup services will pick up the empty containers from distributors, dealers and redemption centers for the deposit initiators for a service fee. These third parties normally negotiate a contract based on volumes collected.<sup>13</sup>

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<sup>13</sup> "Third-Party Systems and Related Companies." August 8, 2018.  
<https://www.dec.ny.gov/chemical/54799.html>

## Redemption Infrastructure

All dealers are required to take back deposit containers that they sell in New York State. Additionally, stores that operate 10 or more locations must provide and clean RVMs based on the following size categories:

- Between 40,000 ft<sup>2</sup> and 60,000 ft<sup>2</sup> devoted to the display of merchandise for sale to the public must install at least 2 RVMs;
- Between 60,000 ft<sup>2</sup> and 85,000 ft<sup>2</sup> devoted to the display of merchandise for sale to the public must install at least 3 RVMs; or
- Greater than 85,000 ft<sup>2</sup> devoted to the display of merchandise for sale to the public must install at least 4 RVMs.<sup>14</sup>

Redemption centers in New York are defined as

*“any person offering to pay the refund value of an empty beverage container to a redeemer, or any person who contracts with one or more dealers or distributors to collect, sort and obtain the refund value and handling fee of empty beverage containers for, or on behalf of, such dealer or distributor.”<sup>15</sup>*

Any one may open a redemption center and they are often small businesses, but they must be registered and certified by the NYS DEC.<sup>16</sup> Due to the high handling fee in New York, redemption centers can be profitable enterprises.

There is a significant difference in the way that redemption is done in the Upstate<sup>17</sup> and New York City<sup>18</sup> regions of New York State. Since the introduction of the 3.5c handling fee the number of redemption centers has increased. In the New York City region, rent costs are somewhat prohibitive, so some businesses have hybridized to take advantage of the business opportunity offered by the high handling fee. One such operation is part redemption center, part processing center and operates on the outskirts of New York City, employing 60 full-time employees to count, separate and sell containers. This organization gets containers from some stores and buildings, but

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<sup>14</sup> New York State Department of Environmental Conservation – “What Does a Dealer Do?”  
<https://www.dec.ny.gov/chemical/59629.html>

<sup>15</sup> New York State Department of Environmental Conservation – “Frequently Asked Questions About the Bottle Bill” - <https://www.dec.ny.gov/chemical/57687.html>

<sup>16</sup> New York State Department of Environmental Conservation website– “What is a Redemption Center and How do They Work?” <https://www.dec.ny.gov/chemical/59639.html>

<sup>17</sup> In this report, “Upstate is defined as all counties above north and west of Westchester

<sup>18</sup> In this report “New York City” is defined as the five boroughs of New York City and Westchester, Nassau and Suffolk counties.

also relies on scavengers that they subcontract, who unload the bottles and cans they've picked up off the streets or from garbage cans.<sup>19</sup>

Both retailers and redemption centers are vital to the redemption infrastructure of New York State and its widespread usage.

## Collection

No one shall sell or offer for sale a beverage container in New York unless a deposit has been collected by a deposit initiator that is registered with the New York State Department of Taxation and Finance. A deposit initiator must also arrange for the pick-up and processing of empty containers and pay dealers and redemption centers for the deposits and a 3.5 cent handling fee on each empty beverage container. The law also requires deposit initiators to report quarterly on deposit collected and redeemed and to remit 80% of the unredeemed deposits to Taxation and Finance.

## Processing and Manufacturing

After collection, non-refillable containers are brought to conditioners for the final steps in their recycling process. These private companies process and convert the containers into the final material for resale.

- Primary processing involves counting, sorting and baling;
- Secondary processing involves refining the baled product into a material that can be sold;
- Manufacturers take the raw material developed through processing and use it to create new containers.

## System Integrity

- Oversight: The agency with oversight of the deposit system is the **New York Department of Environment Conservation (DEC)**. The DEC manages all laws, amendments and legislation associated with the New York deposit return system.
  - The DEC also oversees New York's Environmental Protection Fund (EPF), which, since its inception in 1994, has provided funding to support NY recycling programs.<sup>20</sup>
- Container verification: Containers must be counted to provide accurate data and ensure that the correct deposit amounts are refunded. RVMs automatically count inputted

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<sup>19</sup> Elstein, Aaron. "Conrad Cutler built an empire on recycling cans. But he's putting a dent in city revenue." *Crain's New York Business*. February 18, 2017.

<https://www.craigslist.com/article/20170219/SMALLBIZ/170219873/conrad-cutler-has-built-an-empire-on-recycling-cans-in-new-york-city-for-huge-profits-but-he-s-putting-a-dent-in->

<sup>20</sup> "DEC Announces 25th Anniversary of New York's Recycling Laws." NYS DEC. September 1, 2017.

<https://www.dec.ny.gov/press/111296.html>

containers and provide receipts. Containers that are brought through redemption centers are counted through sorting equipment or by hand at those facilities and/or at processors.

- **Data Management:** Deposit initiators are required to report quarterly on deposits collected and redeemed and to remit 80% of the unredeemed deposits to Taxation and Finance. Dealers and redemption centers provide data on the number and types of materials redeemed through their facilities.
- **Education and awareness:** The State partners with local governments, business, and environmental organizations to maintain, expand, and promote waste reduction, reuse, recycling, organics diversion and product stewardship programs that encourage more sustainable practices and conserve natural resources through grants from the Environmental Protection Fund.<sup>21</sup> However, there is no central system that provides consistent education around recycling across the State.

## 3.0 Current System Employment and Economic Benefit

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### 3.1 Employment

#### 3.1.1 Direct Jobs

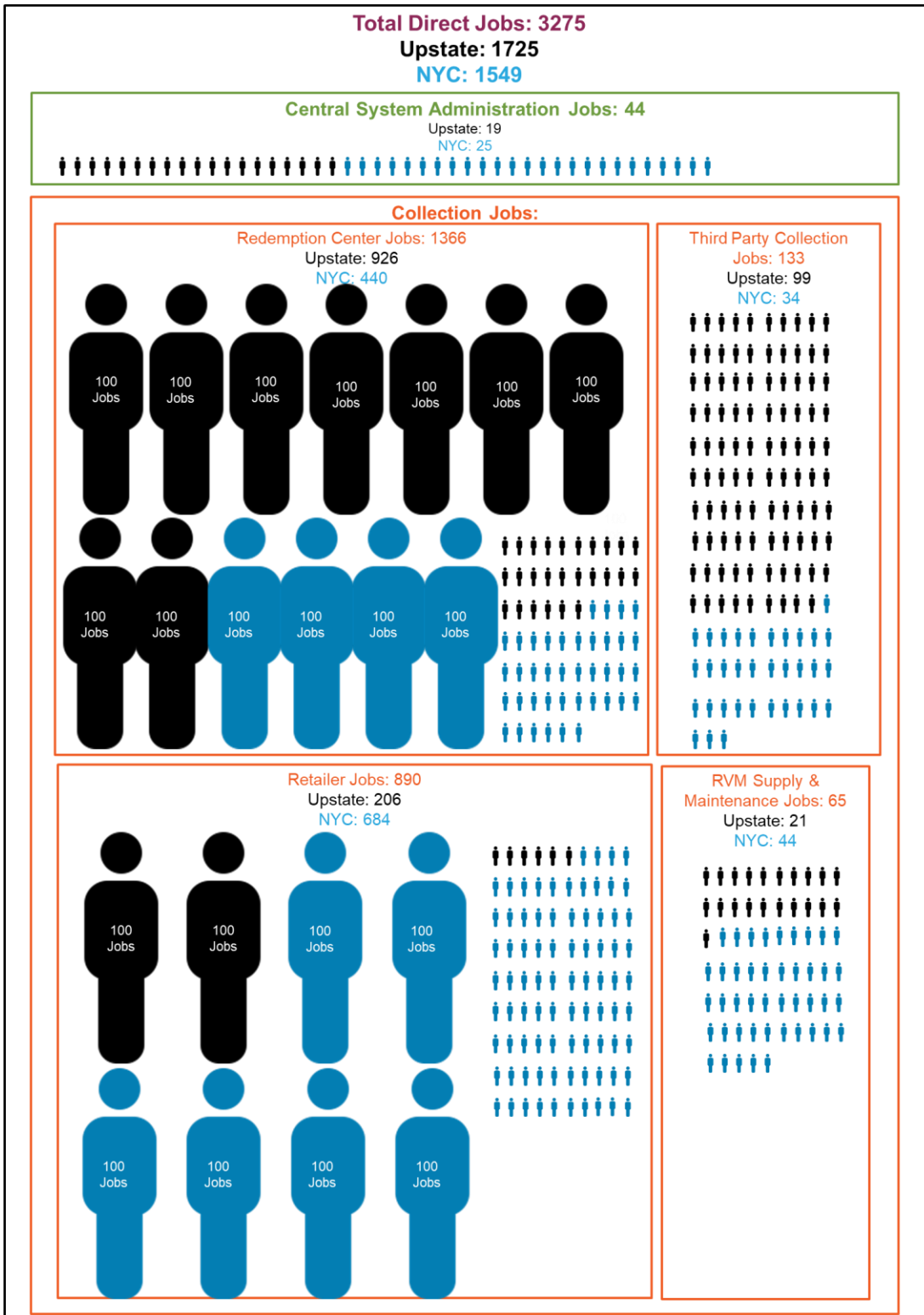
The deposit system in New York has created a robust industry of workers through the infrastructure that supports the system. Employment within the system varies widely among the players. While some jobs, such as system administration, are full-time roles directly supported by the deposit return system, others, such as the retailers, may only have a portion of their time associated with supporting the system. However, the hours spent by individuals engaging with the system are used to calculate the number of full-time equivalent (FTE) jobs.

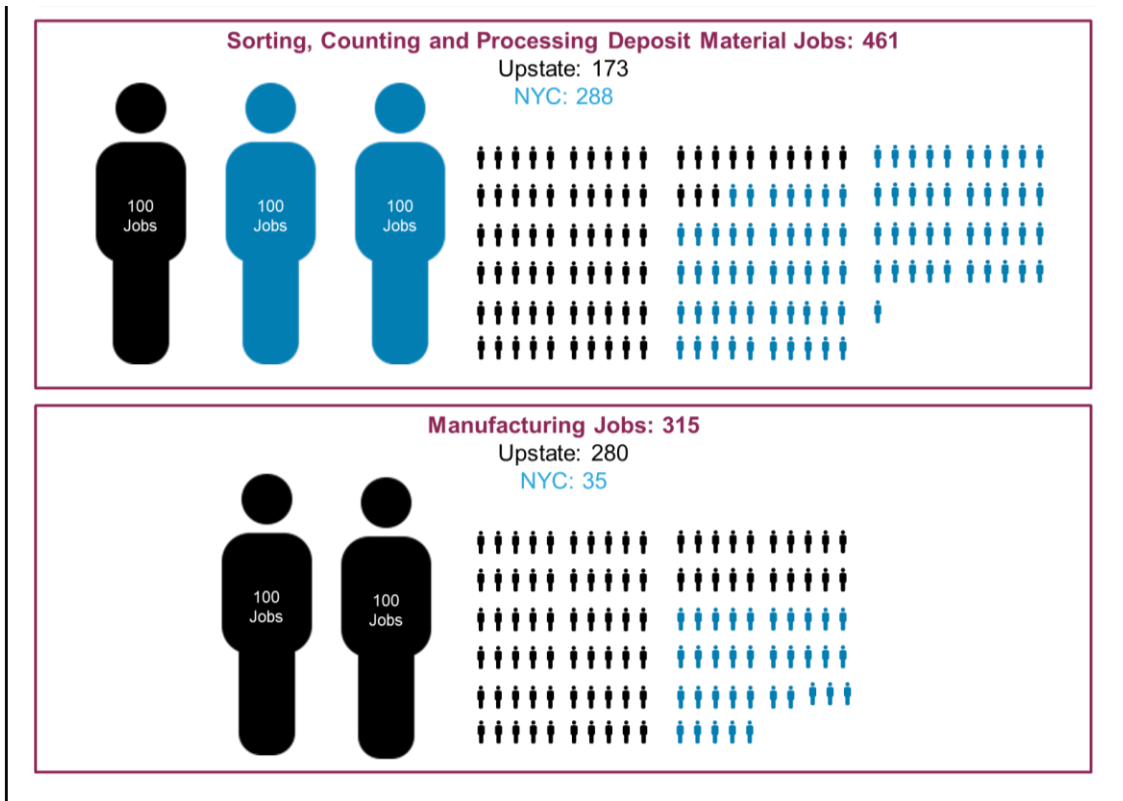
Figure 3-1 shows the breakdown of direct jobs across both the Upstate and New York City regions. For both regions, the largest proportion of employment falls within the collection jobs in the redemption network – at retailers and redemption centers. Collecting containers from consumers and preparing them for transport is a timely process that enables the existence of the deposit return system; fittingly, there are many associated jobs. Details on calculation are found in Sections 3.1.2.3 and 3.1.2.4.

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<sup>21</sup> Ibid.

**Figure 3-1: Direct Jobs from the Deposit Return System in New York**





The breakdown of jobs by category is detailed in Section 3.1.2 below.

### 3.1.2 Jobs Direct, Indirect, Induced

This direct employment is not the only employment benefit derived from the New York deposit return system. Direct employment produces ripple-effects through the economy which create additional benefits. The first of these are indirect impacts which represent;

*“the accumulation of purchases from other industries...that are needed to provide for the level of economic activity specified in the direct effects.”<sup>22</sup>*

Indirect jobs can be created through activity associated with the direct functioning of the system (e.g. a recycling plant purchasing container processing equipment). All indirect jobs calculated are those which occur within New York as a result of the deposit return system.

The second category are induced effects which are based on;

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<sup>22</sup> Connecticut Economic Resource Center Inc. (2012) The economic impact on Connecticut from Recycling Activity

*“the change in income that would occur from the direct and indirect economic activity.”*

Induced effects are changes in household consumption arising from changes in employment and associated income (which in turn results from direct and indirect effects) in New York. For example, these may include additional spending by workers at the recycling plant with their wages, as well as additional spending by equipment manufacturers with income received from sales to the recycling plant.

**5,726**  
Total Direct, Indirect and Induced Jobs created by New York’s deposit return system

By taking a ratio of direct, indirect and induced to the initial direct effects one can arrive at an economic impact multiplier.<sup>23</sup> Altogether, there are 5,726 total direct, indirect and induced jobs created by the deposit return system in New York State.

### 3.1.2.1 Informal Jobs – Cannery

In many areas with deposit return systems there exists an informal network of “cannery,” or scavengers who collect deposit containers from streets, public trash and curbside bins and return them to receive the deposit refund. These containers are a valuable source of income to those individuals. In New York, and especially New York City, this population is especially large, given the dense nature of the environment.

At a redemption center in Brooklyn, New York City, an annual average of 10 million containers pass through the center, returned exclusively by cannery. On a given day, approximately 100 individuals may visit the center, and they support a network of over 700 cannery with only 4 full time and 2 part time staff.<sup>24</sup> The founder of the center believes that there could be up to 10,000 cannery in the City.

In this report, the number of containers passing through redemption centers was used to calculate the number of cannery with the assumption that an average cannery can collect 1,000 containers per day. Based on this information, we estimated that there are 7,632 cannery in New York City, if they work half the days of the year, or 3,816 FTE. This range begins to attempt to quantify the size of a marginalized community who positively contribute to both the economy and the environment, while sustaining themselves through the deposit return system.

### 3.1.2.2 System Administration

Details of system administration jobs were calculated based on the jobs within the various companies that have administrative functions associated with the supply of RVM data management,

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<sup>23</sup> In this study an economic impact multiplier of 1.77 is applied to estimate the indirect and induced effects.

<sup>24</sup> Information provided by redemption center in Brooklyn, NY, 9/1/2018.

invoicing, etc. These jobs were calculated based on the number of staff employed by these organizations in New York their share of this market relative to competitors.

### **3.1.2.3 Retailers**

Although a larger percentage of redemption in New York is done through redemption centers, retailers who sell beverages in New York are required to take back empty containers from customers. Associated with this requirement is the work required to organize, store and return the empty containers.

Jobs created in retailers have been calculated based on the approximate amount of time retailers spend receiving and processing deposit-bearing containers. Underlying this modelling is an estimate of the time taken for tasks involved in receiving containers.

Table A 0-1 in Appendix Section A.2.0 outlines the time involved in undertaking tasks related to receiving containers at those retailers who use RVMs and those that manually take back the containers, as these processes differ.

By calculating the time needed to process each container in the different scenarios, the total amount of jobs created through this arm of the deposit return system is able to be extrapolated. This total time is divided by an estimate of the actual hours worked per employee in New York, as reported by the American Time Use Survey,<sup>25</sup> to arrive at an estimate of FTE jobs created per year.

### **3.1.2.4 Redemption Centers**

The number of people employed by redemption centers was calculated based off of direct sources and interviews with key stakeholders to determine the split between containers redeemed at redemption centers versus those redeemed at retail locations.<sup>26</sup> Redemption center employees interact with customers to receive their containers, sort, count and package product for transport to processors. The majority of materials in New York are received via redemption center, and redemption centers exist solely to support the deposit return system, resulting in the large number of direct jobs to staff the centers.

### **3.1.2.5 RVM Supply and Maintenance**

The use of reverse vending machines is necessitated by the existence of a deposit return system. These machines facilitate the deposit system and allow retailers to streamline the takeback of empty containers. RVMs also provide a verification and fraud mitigation function, as they count containers automatically and compact them. Jobs created in the RVM supply and maintenance industry are

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<sup>25</sup> The American Time Use Survey (2017).

<sup>26</sup> Information received from redemption center operators, 5/22/2018, 9/4/2018, 9/18/2018

directly dependent on the deposit return system and were calculated based on the number of staff employed by manufacturers of RVMs in New York in this function.<sup>27</sup>

### **3.1.2.6 Third Party Collection**

An estimate of total staff working in the third-party collection industry was provided by market experts.<sup>28</sup> These are the truck drivers and other staff of private haulers who are contracted to provide collection services.

### **3.1.2.7 Sorting, Counting and Processing Jobs**

The calculation of jobs created in the sorting, counting and processing material category were extrapolated from direct communication with processors based on their market share relative to competitors.<sup>29</sup> The processing of materials for the deposit return system is labor-intensive and independent of other processes. Counting, sorting and baling the materials during primary processing is an essential step in providing accurate data on the amount of material recovered to ensure the continued smooth operation of the deposit return system. Secondary processing, which involves refining the baled product into a material that can be sold and used to create new containers or other items is also included in this assessment.

### **3.1.3 Manufacturing Jobs**

Manufacturing is the last step of the process and converts the processed materials into new containers to complete the recycling process. In New York, manufacturers both upstate and in the NYC metro area use PET to create new products.<sup>30</sup> Glass manufacturing is also done in-state, there are several bottle manufacturing plants in the Upstate region.<sup>31</sup> A percentage of the jobs at these facilities that were attributable to the deposit system in New York was calculated based on the percentage of raw material originating from the program within the state.

## **3.2 Other Economic Impacts**

The direct employment and cash flow between the beverage industry and dealers constitute only a portion of the economic impacts associated with the New York deposit return system. There is significant economic value to the materials that are captured through the deposit return system, which are of high quality, as well as the direct monetary value of the deposits that are paid at the point of sale, but unclaimed through container return.

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<sup>27</sup> Information received from RVM manufacturer, 8/14/2018

<sup>28</sup> Information received from collector, 8/28/2018

<sup>29</sup> Information received from processors, 10/24/2018

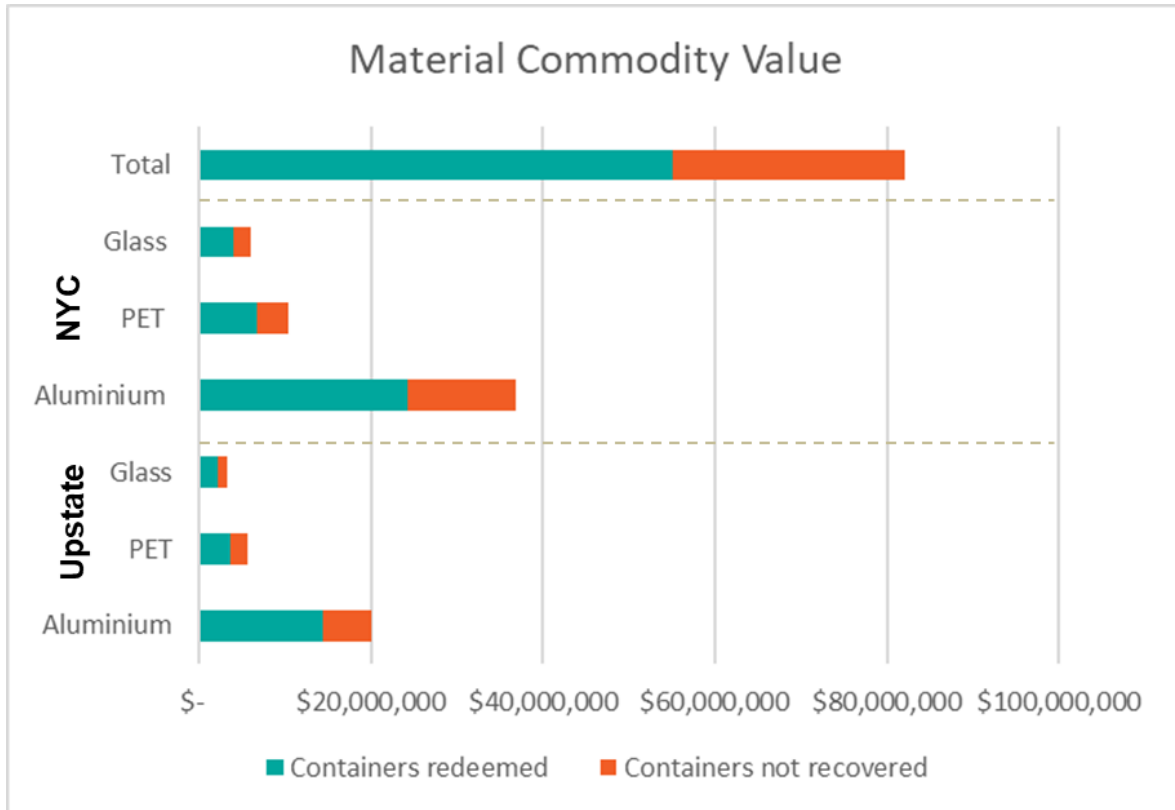
<sup>30</sup> Information received from manufacturers, 11/27/18, 11/27/18

<sup>31</sup> Information received from manufacturers 12/5/18, 12/7/18

### 3.2.1 Material Commodity Value

Clean, well-sorted deposit material can be sold on the market. The value of the commodity of the redeemed deposits, which are well sorted, is often higher than the value of materials that come through a mixed recycling stream, such as a curbside program. Figure 3-2 illustrates the value that is captured through the deposit system in New York, over \$55 million. The chart also illustrates the economic benefit left on the table by containers that are not recovered through the deposit return system.

**Figure 3-2: Material Commodity Value of Deposit Containers**



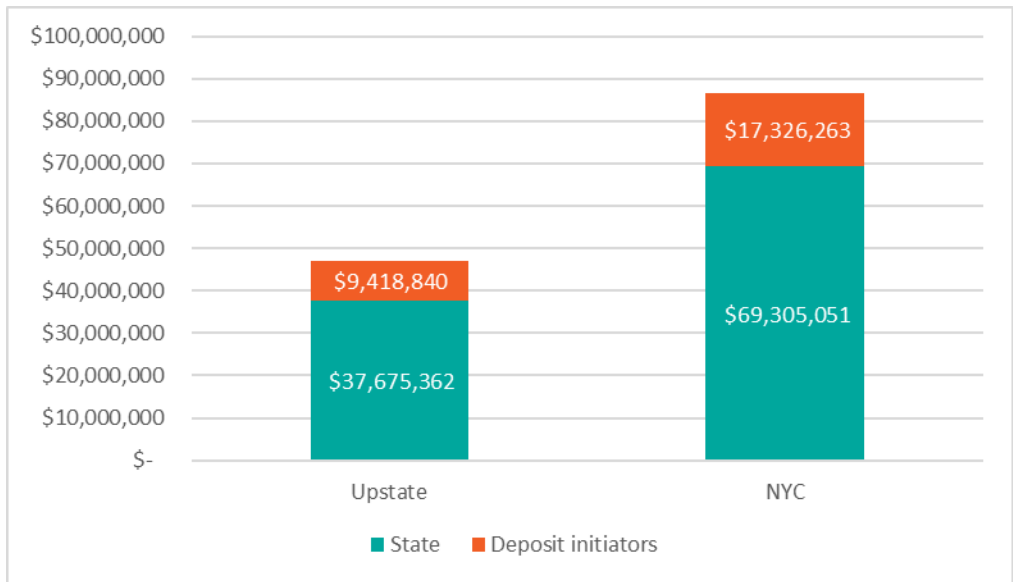
*Calculated based on material redemption rates and estimated commodity values.*

### 3.2.2 Unclaimed Deposits

New York has a specific formula for who retains the revenue from unredeemed deposits. Per the legislation, 80% of unclaimed deposits go to the State and 20% are retained by the deposit initiators. Of the money that goes to the State, \$15 million is dedicated to the State’s Environmental Protection Fund and the remainder is remitted to the State’s General Fund. In 2016, approximately \$134 million was generated from unclaimed deposits. Once the designated amount was dedicated to the Environmental Protection Fund, the State added \$92 million to its General Fund and Deposit Initiators gained \$27 million in revenue. Figure 3-3 details the monetary amounts generated from unclaimed deposits from the New York City and Upstate regions and the destinations of those funds.

Unclaimed deposits added  
**\$92 million**  
to the NY State General  
Fund

Figure 3-3: Destinations of Unclaimed Deposits



Calculated based on material redemption rates and information from the NYS DEC.

### 3.2.3 Handling Fees

For their efforts in administering the deposit return system in New York, dealers are compensated with a handling fee of 3.5 cents per container. This handling fee is the highest of all US states with deposit return systems. These fees are paid by the deposit initiators and are booked as revenue by the dealers who receive them. As shown in Table 3-1, the redemption centers receive the majority of the handling fees, providing support for the cost of maintaining the largest proportion of jobs to administer the system.

**Table 3-1: Handling Fees Paid**

	<b>Upstate</b>	<b>New York City</b>	<b>Total</b>
<b>Redemption Centers</b>	\$41,651,683	\$53,561,083	\$95,212,766
<b>Retailers</b>	\$22,427,829	\$64,155,583	\$86,583,412
<b>Total</b>	<b>\$64,079,513</b>	<b>\$117,716,667</b>	<b>\$181,796,180</b>

*Calculated based on material redemption rates and handling fees from NYS DEC.*

### 3.2.4 Gross Value Added

The Gross Value Added (GVA) measures the value of goods or services added in a sector of the economy. The economic impacts of the jobs created through the deposit return system can be quantified by using salary data and using a standard multiplier.<sup>32,33</sup> In the current deposit return system, the GVA, including indirect and induced impacts is approximately \$272 million. The GVA can also be used with standard tax rates to estimate the revenue that the government gains through income taxes. In New York, the deposit return system generates about \$15 million in taxes for the government through the jobs associated with the system.

## 4.0 Modernization Impacts

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While the New York deposit return system has been fairly successful, there is potential for improvement. One way to increase redemption rates would be to expand the scope of items collected. Not only would this increase the volume of material collected, but it would decrease confusion over what items are eligible for return and therefore encourage more people to return containers.

The following containers were moved into scope;

- Sports Drinks
- Energy Drinks
- Fruit & Vegetable Beverages
- Ready-to-drink Tea & Coffee
- Wine

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<sup>32</sup> Sources for average salary data NY Bureau of Labor: <https://labor.ny.gov/stats/lswage2.asp>

<sup>33</sup> Conservatively assumed 70% of GVA is compensation of employees

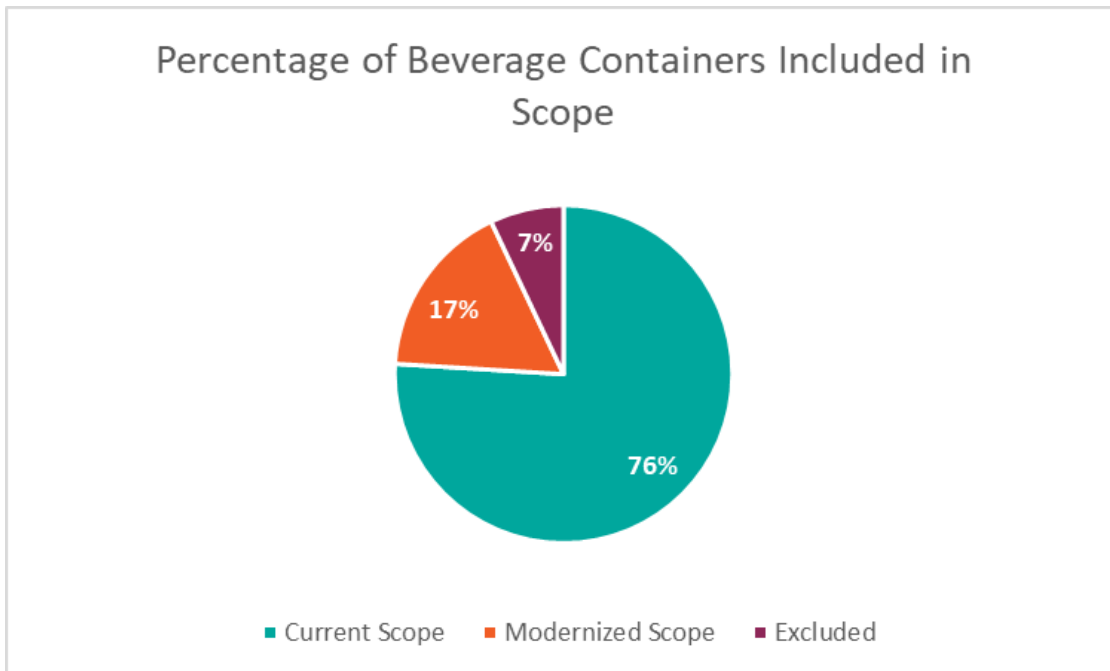
- Spirits (Liquor)

The full scope therefore becomes;

- Carbonated Soft Drinks
- Beer & Hard Cider
- Domestic Sparkling Water
- Domestic Non-Sparkling Water ( $\leq 1$  gal)
- Sports Drinks
- Energy Drinks
- Fruit & Vegetable Beverages
- Ready-to-drink Tea & Coffee
- Wine
- Spirits (Liquor)

While the increase in scope is significant in terms of breadth of beverage types included, Figure 4-1 illustrates that the impact in terms of units sold is only an increased scope of 17%.

**Figure 4-1: Percentage in Scope of Current and Modernized Systems**



Additionally, increasing the value of the deposit containers by raising the deposit level from 5 cents to 10 cents would further encourage higher rates of return and the diversion of more material from the waste stream and into the deposit return system. This model assumed an increase in redemption rate to 80% from current levels for all materials as a result of the extended scope and increased deposit level.

These changes could lead to a potential increase of in the number of containers going through the deposit return system from about 5.2 billion containers collected across the State in the current system to about 7.1 billion containers redeemed – a 38% increase – through a modernized deposit return system.

## 4.1 Impact on Jobs

### 4.1.1 Direct, Indirect, Induced

With an increased return rate of deposit-bearing containers, the infrastructure needed to collect and process them would increase, leading to more jobs required to support the system. If redemption rates rise to 80% for materials, the number of direct jobs would rise to 4,415, a 35% increase. The full breakdown of direct jobs by category under a modernized system can be found in the Appendix Section A.3.0.

**7,964**

Total Direct, Indirect and Induced Jobs created by New York’s deposit return system if it were modernized

As explained earlier, direct employment produces ripple-effects through the economy, which create indirect and induced benefits. Applying the indirect and induced employment multiplier used in Section 3.1.2 results in an estimate of 7,803 FTE direct, indirect and induced jobs (4,195 in Upstate and 3,769 in New York City) that would be associated with New York’s deposit return system if it were modernized.

### 4.1.2 Impact on curbside jobs

Due to the increase of material going through a modernized deposit return system, there would be less material going through the curbside system. The decrease in material to process in the curbside system would lead to the loss of some jobs within this system. The modernized system described above required 161 fewer jobs across the State than it does today – 59 in the upstate region and 102 in the New York City region. However, with an increase of 2,077 FTE jobs over the current deposit system, the modernized deposit system would compensate for the loss of jobs in the curbside system, as they would shift toward the deposit system.

In total, there would be a net of 7,803 jobs – 4,136 Upstate and 3,667 in New York City – supported by the deposit return system, if it were to be modernized, an increase of 2,077 FTE jobs, or 36% over the current system.

**7,803**

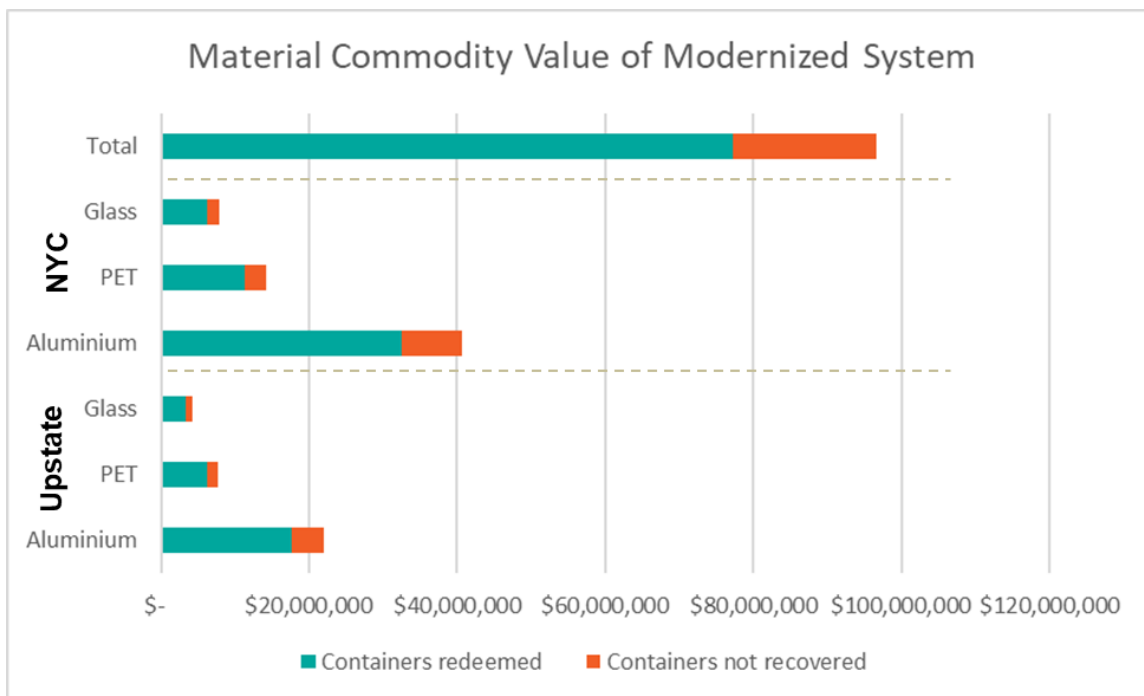
Total Direct, Indirect and Induced Jobs taking account of loss of curbside jobs

## 4.2 Other Economic Benefits

### 4.2.1 Material Commodity Value

In a modernized system, there would be more material recovered through the deposit system, therefore more of the value of commodity materials would be captured. This shift would be through both new revenue from the expanded scope of the program as well as a shift from curbside to the deposit return system due to the increased deposit level. The aluminum collected in the New York City region is currently the largest revenue stream at over \$14 million, and that would continue to be the case under a modernized system, but the value would increase to nearly \$18 million, a 23% increase. The total value of all materials recovered in a modernized system would increase from \$55 million to \$77 million, a 40% increase. The material unrecovered by the deposit return system would decrease significantly, and the value left unrealized would decrease from approximately \$27 million to \$19 million, a 28% decrease. The decrease would occur most significantly, by 74%, in PET plastics in the New York City region, as seen in Figure 4-2.

**Figure 4-2: Material Commodity Value of Deposit Containers in a Modernized System**



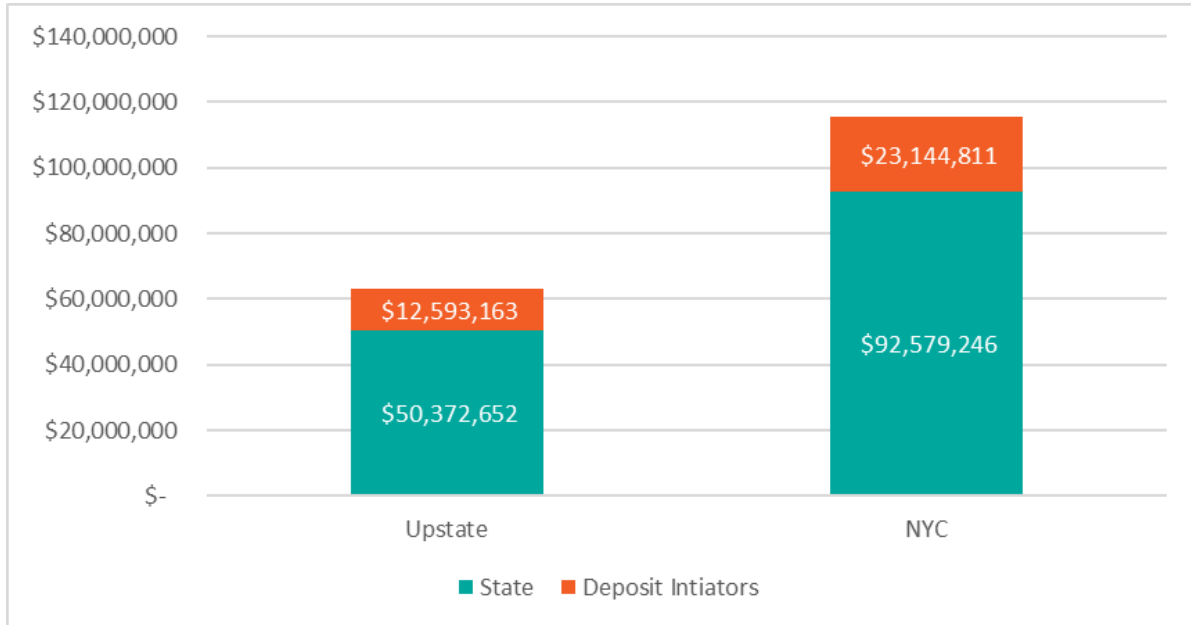
*Calculated based on material redemption rates and commodity values.*

### 4.2.2 Unclaimed Deposits

Under the modernized system, there would be a significant increase in the funds generated through unclaimed deposits, primarily through the increased in the deposit value from \$0.05 to \$0.10. As the total value of unclaimed deposits increased from approximately \$134 million to nearly \$179 million –

a 34% increase – the biggest windfall would be to the State General Fund, which would continue to retain 80% of the unclaimed deposits, only remitting \$15 million to the Fund for Environmental Protection, unless the law changed to increase this remittance. Figure 4-3 illustrates the new breakdown of beneficiaries from the revenue generated by the unclaimed deposits.

**Figure 4-3: Unclaimed Deposits in Modernized System**



*Calculated based on material redemption rates and information from the NYS DEC.*

### 4.2.3 Handling Fees

With the expanded scope of a modernized deposit return system, the numbers of containers going through the system would increase, resulting in an increase in the amount of handling fees paid. If the handling fees remained 3.5 cents per container under a modernized system, the total value of the handling fees paid would increase to over \$250 million, nearly 40% more than under the current system, as shown in Table 4-1.

**Table 4-1: Handling Fee Distribution Under Modernized System**

	Upstate	NYC	Total
<b>Redemption Centers</b>	\$57,298,891	\$73,716,224	\$131,015,115
<b>Retailers</b>	\$30,853,248	\$88,297,455	\$119,150,703
<b>Total</b>	<b>\$88,152,141</b>	<b>\$162,013,680</b>	<b>\$250,165,81</b>

Calculated based on estimated material redemption rates under modernized system and handling fees from NYS DEC.

#### 4.2.4 Gross Value Added

Due to the increase in the number of jobs created through a modernized system, the GVA increases as well. In the modernized system, the GVA including indirect and induced impacts is about \$374 million, a 38% increase. Concurrently, the tax revenue for the government would increase as well, coming to \$31 million in a modernized system.

## 5.0 Conclusion

The New York deposit return system is a model of the successful use of an incentive to drive positive results. The 3,275 FTE jobs directly created by the deposit return system are only one example of the impacts that the system has on the economy of the province. When indirect and induced effects are considered, the 5,726 FTE jobs begins to provide a fuller picture of the far-reaching impacts that the system provides.

Unredeemed deposits and the value of the commodity materials generated by the deposit return system provide funds to both governmental agencies and private organizations, further emphasizing the economic benefit of the deposit return system.

A modernized deposit return system would only amplify the effects of the current system. Expanding the scope to include other containers that currently don't currently have a deposit, like energy and sports drinks, and raising the deposit level to 10 cents would increase the volume of material recycled and the overall recycling rate of the state. The additional 2,077 FTE jobs modeled in this assessment is just the beginning of the positive effects that New York would gain through a modernized system. Table 5-1 summarizes the economic impacts of both the current deposit system and the modernized system.

**Table 5-1: Summary of Economic Impacts of Deposit Return Systems in New York State**

Benefit	Current System	Modernized System	Percent Increase
<b>Direct Jobs Created</b>	3,275 FTE	4,415 FTE	35%
<b>Direct, Indirect and Induced Jobs Created</b>	5,726 FTE	7,803 FTE	36%
<b>Commodity Value of Deposit Material</b>	\$55 million	\$77 million	40%

<b>Unclaimed Deposits</b>	\$134 million	\$179 million	34%
<b>Gross Value Added</b>	\$272 million	\$374 million	38%
<b>Tax Revenue</b>	\$22 million	\$31 million	41%

*Eunomia Calculations.*

Deposit return systems are implemented for a variety of reasons. In New York, the law was meant to reduce litter and ease the burden on the solid waste system. In addition to accomplishing those aims, the program helps to keep parks, beaches and roadsides clean, increase recycling rates for glass, plastic and aluminum and create jobs. An expanded program would only serve to increase the positive effects of the current system.

# ***APPENDICES***



## A.1.0 Third-Party Pick-Up Companies

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The list below details the certified companies that operate collections of deposit materials in New York State.<sup>34</sup>

- Environmental Products Corporation (Envipco)
  - 99 Great Hill Road
  - Naugatuck, CT 06770
  - Telephone: 800-275-3861
  - Area served: All counties in New York State
  - Note: Envipco sells and leases reverse vending machines.
  
- TOMRA New York Reverse Vending
  - One Corporate Drive, Suite 710
  - Shelton, CT 06484
  - Telephone: 800-542-2569
  - Sales: Sales@tomrana.com
  - Area served: All counties in New York State
  
- TOMRA NY Recycling, LLC
  - 31 Opus Boulevard
  - Rotterdam, NY 12306
  - Telephone: 518-356-2597 Fax: 518-357-9502
  - **Contact:** Doris Schwaller (Billing): doris.schwaller@tomra.com
  - **Contact:** Josh Nelson (Operations): josh.nelson@tomra.com
  - Area Served: Albany, Schenectady, Rensselaer, Columbia, Greene, Schoharie, Fulton, Montgomery, Herkimer, Hamilton, Saratoga, Warren, Washington, Essex Counties.
  
- TOMRA NY Recycling, LLC
  - 147 Falso Dr
  - Mattydale, NY 13211
  - Telephone: 315-656-2089 Ext. 4
  - Contact: Doris Schwaller (Billing): doris.schwaller@tomra.com

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<sup>34</sup> "Third-Party Systems and Related Companies." NYS DEC website (8/8/18).  
<https://www.dec.ny.gov/chemical/54799.html>

- Contact: Josh Nelson (Operations): josh.nelson@tomra.com
- Area Served: Oneida, Madison, Onondaga, Oswego, Jefferson, Lewis, St Lawrence, Franklin, Clinton Counties
  
- TOMRA NY Recycling, LLC
  - 5923 Loomis Rd
  - Farmington, NY 14425
  - Telephone: 315-656-2089 Ext. 4
  - Contact: Doris Schwaller (Billing): doris.schwaller@tomra.com
  - Contact: Randy Scott (Operations): randy.scott@tomra.com
  - Area Served: Monroe, Wayne, Ontario, Livingston, Yates, Seneca, Cayuga, Wyoming, Genesee, Orleans Counties
  
- Western NY BICS
  - 4284 Walden Avenue
  - Lancaster, NY 14086
  - Telephone: 585-742-3790 Ext. 19017
  - Contact: Doris Schwaller (Billing): doris.schwaller@tomra.com
  - Contact: Randy Scott (Operations): randy.scott@tomra.com
  - Area Served: Erie, Niagara, Chautauqua, Allegany, Cattaraugus Counties
  
- Star Cooperative
  - PO Box 558
  - Vestal, NY 13851-0558
  - Telephone: 607-797-2331 Fax: 607-797-2333
  - Contact: John Ward, Sr. email: john@starcooperative.com
  - Area Served: Broome, Portions of Tioga, Delaware, Otsego, Chenango Counties
  - Comments: This company is part of a distributor cooperative
  
- Central Recycling Cooperative (CRC)
  - 260 Latta Brook Park
  - Horseheads, NY 14845
  - Telephone: (607) 733-2227
  - Contact: Steve Alexander
  - Area Served: Chenango, Otsego, Delaware, Schuyler, Steuben, Tioga, Tompkins, Yates and part of Cortland Counties
  - Comments: This company is part of a distributor cooperative
  
- Crown-Y
  - 2 Water St
  - Cuba, NY 14727
  - Telephone: (585) 968-3658

- Area Served: Allegany, Cattaraugus, Steuben, and parts of Livingston, Ontario, and Wyoming counties
- 5 Boro Green Services, LLC
  - 54-35 48th Street
  - Maspeth, NY 11378
  - Telephone: (718) 482-7180
  - Area Served: New York City Metropolitan Area
- ReCommunity Holdings, Inc. (Formerly Hudson Baylor)
  - 300 Rye Street
  - South Windsor, CT 06074
  - Telephone: (888) 557-4353
  - Area Served: Columbia, Greene, Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, and Westchester Counties
- Parallel Products
  - 885 East 137th Street
  - Bronx, NY 10454
  - Telephone: (617) 908-1276
  - Contact: Goutam Persaud, Field Operations Manager
  - Area Served: New York City Area
- Arbor Recycling Inc
  - 1120 Grinnell Pl
  - Bronx, NY 10474
  - Telephone: (718) 328-5807/5808
  - Area Served: Bronx, Brooklyn, Queens, Westchester, Long Island

## A.2.0 Retailer Time Estimates

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Table A 0-1 breaks down the estimated time for completion of deposit return-related tasks at retailers.

**Table A 0-1: Time for tasks involved in receiving containers (per container/RVM)**

Task	Time Taken
Emptying an RVM Bin	5 minutes
Cleaning an RVM	12 minutes

<b>Receiving a container by RVM</b>	3 seconds
<b>Manually receiving a non-refillable container</b>	3 minutes
<b>Manually receiving a refillable container*</b>	9 minutes

*\*Time for manual receipt of refillable containers is higher than for non-refillable container to account for the additional time that retailers spend sorting refillable beer containers by brand, shape, size and color.*

## A.3.0 Direct Jobs Under a Modernized System

Table 0-1 details the jobs created in each category under a modernized system.

**Table 0-1: Direct Job Categories Under Modernized System**

	<b>New York Upstate</b>	<b>New York City</b>
Central System Administration	46	61
Redemption Centers	2,252	1,070
Retailers - Stores with RVMs	403	1,388
Retailers - Manual takeback stores	98	275
RVM Supply and Maintenance	51	106
Third Party Collection	242	82
Trash Collection	-59	-102
Sorting and Counting and Processing Deposit Material	421	700
Manufacturing	682	85
Total not including curbside loss	<b>4,195</b>	<b>3,769</b>
Total including curbside loss	<b>4,136</b>	<b>3,667</b>