

How a Federal Bottle Bill Can Increase Recycling Rates in the United States

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Dedication

I dedicate this thesis to my family for continuously supporting my academic journey. I am so thankful for each of you because you helped shape me into the person I am today. This project would not have been possible without your love and support.

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Abstract

This research thesis examines the impact that past and current state bottle bills have had on recycling rates and reducing litter and landfill waste. Particular attention is given to the Michigan bottle bill because they have consistently yielded the highest return rates for beverage containers. I also study the effects of Delaware's decision to revoke their bottle bill. After studying the positive and negative effects of state bottle bills, I propose the best solution to increase recycling rates is by implementing a federal bottle bill. This research thesis examines the currently proposed federal bottle bills and considers the effects that a federal bottle bill would have on the beverage industry, retailers, and consumers. Finally, a conclusion is reached determining the solution that will be the best to increase recycling rates and reduce litter and landfill waste.

Table of Contents

Introduction1

What is a bottle bill?2

Where are bottle bills present?4

Which bottle bills have been successful and which have not?4

The significance of Michigan’s bottle bill4

Opposition to state bottle bills7

 Michigan’s fight against fraud and the beverage industry8

 Delaware’s bottle bill11

The solution: A federal bottle bill13

Currently proposed federal bottle bills14

 The CLEAN Future Act14

 The Break Free from Plastic Pollution Act16

How a successful federal bottle bill would work17

Who benefits from a successful bottle bill?20

Conclusion21

References23

Introduction

One of the biggest problems the United States faces is a lack of recycling. The consequences of this problem are that many recyclable beverage containers become litter or occupy critical space in landfills. According to BottleBill.org, beverage containers make up 40% to 60% of litter (*What is a bottle bill?*). Items that make up litter pose a threat to the environment and wildlife because they often take a long time to decompose. For example, one plastic bottle takes approximately 450 years to decompose. A common misconception is that when plastic bottles decompose, they no longer pose a threat to the environment. However, for manmade items like plastic bottles, the opposite is true. When containers like plastic bottles are decomposing, they break down into smaller fragments that can contaminate the food and water sources available to wildlife. In addition, the space occupied by plastic bottles, glass bottles, and aluminum cans in landfills could be used for non-recyclable materials. By reducing the unnecessary amount of waste that enters landfills, the lifetime of the landfills will be extended and have a positive impact on the environment.

While many states have laws and fines in place to discourage citizens from littering, they are very difficult to enforce unless someone is caught committing the crime. In addition, states have multiple ways for citizens to dispose of their trash and recycle the items that meet the particular criteria based on the type of material. Many solid waste convenience centers, more commonly known as garbage dumps, have bins designated for recyclable items such as paper, aluminum, plastic, and glass. In addition, some trash collectors also accept recyclable items. Nevertheless, many recyclable items still end up on the sides of the roads and in the environment. Even though this is a

challenge that the United States is facing, there is a solution that has already begun to increase recycling rates. Consequently, this decreases the amount of litter and landfill waste. This solution is known as a bottle bill.

The purpose of this research thesis is to study the past and present bottle bills in the United States to determine which ones have been the most effective and how their success can be applied to a federal bottle bill that will increase recycling rates. While there are many recycling options available to consumers today, the most successful recycling method is the bottle bill. The solution to increase recycling rates across the United States, thus reducing litter and landfill waste, is to enact one cohesive federal bottle bill.

What is a bottle bill?

A bottle bill is legislation that can be passed at the state level to mandate that a monetary deposit be placed on beverage containers in that state. According to BottleBill.org, many states that enact bottle bills do so to decrease litter and the number of recyclable materials that go to landfills (*What is a bottle bill?*). The types of containers accepted can include plastic, metal, glass, and paper, but this varies from state to state. The bottle bill also determines what the deposit price will be. Most states choose a five or ten cent deposit to place on their beverage containers. When the consumers pay for their items at checkout, the deposit price is added to their total. Then, when the consumer is finished with the containers, they must rinse out the container and return it to get their deposit money back.

Once the consumer is ready to return their containers, there are two common methods used to get their money back. The first option is to return them to the store and

give them to an employee who will count the containers and issue the appropriate refund. The second option is to return them to a reverse vending machine. A reverse vending machine is most commonly placed on the sidewalks in front of grocery stores or in a room near the back of the store. Consumers can bring the clean containers to the machine and insert them one at a time. The machine then scans the bottle to make sure it is free from debris and other foreign objects. Then, the machine sends the item to the appropriate bin based on the material of the container. For example, glass containers are sent to one bin, aluminum cans are sent to a different bin, and plastic containers are sent to another. Since the machine sorts the containers, it makes it easier for the products to be transported to recycling facilities and recycled efficiently. Once the consumer has returned their containers, the reverse vending machine issues a receipt that is redeemable for a cash refund or a credit on a mobile application associated with the machine. The return methods available to consumers vary based on the state and reverse vending machine companies. These processes provide consumers with an incentive to recycle because they can get their deposit money back. Once the containers are returned, they are taken to a facility where they can be recycled and turned into new products. This keeps the beverage containers off the streets and out of the landfills.

The best way to address the root problem of recyclable beverage containers going to landfills is to implement one federal bottle bill. This bottle bill would require all the states to have the same rules and regulations for deposit prices, return options, and materials that are included in the bill. This would make it easier on the beverage companies because they would only need to deal with one set of regulations for the entire United States instead of different sets of regulations for each state.

Where are bottle bills present?

There are currently ten states in the United States that have bottle bills (*What is a bottle bill?*). The list of states, along with information regarding the year the bottle bill was implemented and the deposit prices, are presented in a table below.

Table 1: Year Implemented and Deposit Price

State	Year Implemented	Deposit Price
California	1987	5¢- containers under 24oz. 10¢- containers over 24 oz.
Connecticut	1980	5¢
Hawaii	2005	5¢
Iowa	1979	5¢
Maine	1978	15¢- Wine and liquor above 50mL 5¢- all others
Massachusetts	1983	5¢
Michigan	1978	10¢
New York	1983	5¢
Oregon	1972	10¢ - (raised from 5¢ in 2017)
Vermont	1973	15¢- liquor 5¢- all others

Which bottle bills have been successful and which have not?

The table below provides redemption rates for the past five years for each of the ten states that have bottle bills. However, not all of them have reported their return rates consistently. As shown by the statistics below, Michigan and Oregon have the highest return rates, which can most likely be attributed to their 10¢ deposit fees.

Table 2: Redemption Rates

State	2016	2017	2018	2019	2020
California	72%	68%	66%	67%	62%
Connecticut	48.5%	52%	50%	50%	44.5%
Hawaii	65%	63%	63%	62%	62%
Iowa	64%	n/a	n/a	n/a	n/a
Maine	90%	84%	n/a	n/a	n/a
Massachusetts	56%	57%	52%	50%	43%
Michigan	92%	91%	89%	89%	n/a

New York	66%	65%	64%	64%	64%
Oregon	64%	73%	81%	86%	n/a
Vermont	n/a	n/a	n/a	n/a	77%

The significance of Michigan’s bottle bill

Arguably one of the most successful bottle bills in the United States, Michigan’s bottle bill seeks to be a major contributor to the change necessary in the country. The Michigan bottle bill was enacted in November of 1976 and implemented in December of 1978 (*What is a bottle bill?*). According to BottleBill.org, the purpose of the bill is to “reduce roadside litter, clean up the environment, and conserve energy and natural resources.” The bill requires a ten-cent deposit on nearly all beverage containers that are metal, glass, paper, or plastic that are under one gallon. While the Michigan bottle bill has had some problems in the past, it has continued to evolve into a successful bill that has decreased litter, reduced the space needed for landfills, and has the highest redemption rate for beverage containers.

While the main purpose of a bottle bill is to encourage consumers to return the beverage containers, there is still the inevitable circumstances that will occur when some containers are not returned to the stores. As a result, there will be instances when deposits go unclaimed and there is extra money. The way the system currently works is that each state that enacts a bottle bill has the opportunity to decide where that money is dedicated to go. Michigan decided that 75% of the unclaimed deposits would go to the state to be used specifically for environmental programs, and the other 25% would go to the retail stores (*Michigan*).

Michigan’s bottle bill has contributed to multiple positive changes in the state. The first positive impact of Michigan’s bottle bill is the reduction of litter. As a result of

the ten-cent deposit, consumers viewed the beverage containers as holding monetary value. Thus, they felt obligated to be more responsible with the beverage containers they purchased so they could get their deposit money back. According to Richard Porter's article "Michigan's Experience with Mandatory Deposits on Beverage Containers" (1983), the implementation of Michigan's bottle bill resulted in an 85% decrease in litter related to beverage containers. The noticeable difference along the interstates and highways resulted in a savings of \$1 million that would usually have been spent on litter pickup efforts.

The second positive impact Michigan's bottle bill has had is on the state's economy. As previously mentioned, 25% of the unclaimed deposits go to the retail stores and 75% goes to fund environmental programs (*Michigan*). While the main purpose of bottle bills are to encourage recycling and reduce the number of recyclable items that end up in landfills, it is unlikely that any state would ever see a 100% return rate. There are many factors that can be the cause of this, such as destruction of the beverage container, tourists who are not aware of the bottle bill procedures, or the convenience of being able to throw something away at a given moment. When situations like this occur, the money is split accordingly between the environmental programs and the retail stores. Then, the unclaimed deposits are used to help the environment.

In her article "Unclaimed Bottle Deposits to Help Fund Wetlands Program," Amy Lane (2009) explained one opportunity where the unclaimed deposit money was used to help the state. Lane explained that Governor Jennifer Granholm made the decision in 2009 to use \$2.1 million of the money from unclaimed deposits to help fund the wetlands program. This was decided because the program was in danger of losing funding, which

meant the protection and regulation of the wetlands program would no longer have been performed by the state of Michigan. Instead, they would have had to turn over the responsibilities to a federal program. According to Lane (2009) it was important to the Michigan Environmental Council to keep the regulation within the state because they believed they could protect it the best. If it had not been for the unclaimed deposit money, the program would not have survived. Thankfully, this was not necessary because there were available funds from unclaimed deposits.

One major contribution to the success of Michigan's bottle bill is the ten-cent deposit. According to Porter (1983), Michigan had a redemption rate of 95% during the first year it was in place. This was the highest return rate for any bottle bill in the country. It was also the first and only bottle bill that required a ten-cent deposit at the time. Considering this is the only major difference between Michigan's bottle bill and the others in place at the time, there is no doubt that the additional five cents has made a huge positive impact to the success of Michigan's bottle bill. Today, Michigan's bottle bill continues to have the highest redemption rate in the United States. According to BottleBill.org, Michigan's return rate was 89% in 2019 (*Michigan*). The success of Michigan's bottle bill is proof that a successful system can be implemented to increase recycling rates by creating an incentive for consumers.

Opposition to state bottle bills

Currently, there are ten states in the United States that have active bottle bills in place. Even though there are many positive results from state bottle bills, they do not operate without flaws or opposition. Beverage companies are opposed to bottle bills because they fear that the deposit amount placed on their beverage containers will deter

customers. As a result, when new states want to implement bottle bills, beverage companies provide incentives for states to decline the bottle bill legislation.

For example, when a bottle bill was proposed in Tennessee, beverage companies proposed an alternative solution. According to Corkery (2019), “beverage companies agreed to pay a small tax in order to fund litter pickup efforts, education programs, and handouts promoting recycling.” In addition, inmates in the state perform the litter cleanup to keep costs low. While this program does help keep the highways clean, it does not address the root problem because many of the items collected cannot be recycled since they are contaminated. As a result, most of the items still go to a landfill.

Michigan’s fight against fraud and the beverage industry

Arguably one of the most difficult challenges faced by states that implement bottle bills is the potential for fraud. Sadly, the state of Michigan knows this downfall all too well because they have faced a considerable amount of fraud in the past. Until 2017, Michigan was the only state that offered a ten-cent deposit on all containers included in their bottle bill. According to Scott Boyer’s article “The Ten-Cent Windfall: Bottle Returns, Interstate Commerce, and Environmental Fallout” (2016), when people from other states learned that Michigan offered a ten-cent return, they began taking their beverage containers to Michigan to get more money. This occurred because people in other nearby states either had a return of five cents or no return at all if their state did not have a bottle bill in place. When citizens from other states brought their beverage containers to Michigan, it meant Michigan was giving returns to people who had not paid the initial ten cent deposit. This caused retailers to notice they were losing a significant amount of money.

Since Michigan was losing a lot of money, the state government asked the beverage industry and the federal government if they could have a bottle-marker placed on their containers to prevent fraud (Boyer, 2016). As Boyer (2016) explained, “By providing financial incentives to recycle, states have transformed trash into an alternative form of income as an article of commerce.” This meant the case had to be evaluated by the federal government because it became a constitutional concern. These circumstances led to an investigation to see if bottle-markers would be constitutional under the commerce clause.

According to Boyer (2016), the enactment of Michigan’s bottle bill in 1976 required all beverage containers to be labeled with “MI 10cents.” Beverage companies were obligated to add the “MI 10cents” to all containers that were listed in the bottle bill. Since Michigan faced many challenges with fraud, the state added the Unique-Mark Amendment to their bottle bill in 2008 (Boyer, 2016). This amendment meant all beverage companies had to place a unique mark on containers that would be sold in Michigan. Then, reverse vending machines would be programmed to scan for the specific mark. If there was no mark on the container, it would mean the container was not purchased in Michigan, and therefore the machine would not accept the container. In 2012, the case of American Beverage Association v. Snyder was brought to the United States Court of Appeals for the Sixth Circuit. The case was brought to specifically deal with the constitutionality of the bottle marker law Michigan added to their bottle bill. The American Beverage Association had to take two different approaches to try to prove that Michigan’s Unique Marker Amendment violated the commerce clause.

The first way the American Beverage Association tried to prove this was by arguing that the law was discriminatory. Within this argument, there were three categories of discrimination. The first type of discrimination was facial discrimination. The American Beverage Association argued that “the statute only applied to interstate manufacturers or shippers of beverages, since Michigan's operative thresholds are only met by companies with high volumes of business” (Boyer, 2016). The court determined that this was false because the rules applied to all manufacturers. According to Boyer (2016), the second claim of discrimination made was purposeful discrimination because the “unique-mark law had a discriminatory purpose of preventing vendors in Michigan from purchasing the same beverage containers manufactured by out-of-state distributors.” The court also found this to be false because the state wanted the bottle markers for the purpose of preventing fraud. As stated in Boyer (2016), the final claim made on the basis of discrimination was made by arguing that Michigan’s Unique Marker Amendment had a discriminatory effect. Once again, the court ruled that there was no evidence of discrimination because there was no differentiation of rules for in-state versus out-of-state beverage distributors (Boyer, 2016).

The second approach the American Beverage Association took to try to prove that Michigan’s Unique Marker Amendment was invalid was by claiming it violated the extraterritorial doctrine under the Dormant Commerce Clause. As quoted in Boyer (2016), the extraterritorial clause principles are upheld by a “constitutional concern with the maintenance of a national economic union unfettered by state-imposed limitations on interstate commerce and with the autonomy of individual states within their respective spheres.” Since the Michigan Bottle Bill transformed the beverage containers from

articles of trash to articles of commerce, the court found the bottle-marker to be in violation of the extraterritorial doctrine of the Dormant Commerce Clause. As a result, the Michigan Unique Marker Amendment was declared unconstitutional, and the American Beverage Association won the case.

Another problem faced by Michigan's bottle bill was an increase in the prices of beer, which led to a reduction in beer sales. According to Richard Sjolander and Peter Kakela's article "Michigan's Mandatory Beverage-Container-Deposit Law: Economic effects of a Public Policy on Industry Sales" (1988), the implementation of the bottle bill led to an increase in the prices of beer. This caused a reduction in sales, and thus a reduction in tax revenue from the sale of beer. Sjolander and Kakela (1988), presented and explained three models to show the correlation between the price of beer and the amount purchased before, during, and after the implementation of the Michigan Bottle Bill. According to Sjolander and Kakela (1988), the study found that Michigan's Bottle Bill had a negative effect on the sale of beer. The test found that there was a 5-7% decrease on beer sales (Sjolander & Kakela, 1988). This resulted in a loss of approximately \$4 million in tax revenue per year. This may sound like a huge loss for government revenue, but the loss should be weighed against the benefits realized. A decrease in beer sales and consumption cannot be proved to be a bad thing. If people buy less beer, they will spend money on other beverages or items that will contribute to tax dollar revenue.

Delaware's Bottle Bill

In 1982, Delaware became one of multiple states to implement a bottle bill to increase recycling. The bill included a 5¢ deposit on eligible containers that were sold in

the state, and the only way for consumers to get the deposit back was to return the container to the retail store or redemption center. In 2009, a repeal bill passed in Delaware's House and Senate (*Delaware – past campaigns*). Governor Jack Markell vetoed that bill and proposed his own version in 2010. Markell's proposal included removing the 5¢ refundable deposit from all beverage containers and replacing it with a “non-refundable 2¢ fee used to fund curbside collection programs” (*Delaware – past campaigns*). The 2¢ fee was changed to a 4¢ fee prior to introducing it in the Senate in April of 2010. On December 1, 2010, the 5¢ deposit fee ended, and on March 1, 2011 the refund system ended. On November 30, 2010 the 4¢ fee went into effect in the state of Delaware (*Delaware – past campaigns*). However, this system would only remain in place until December 1, 2014, or until \$22,000,000 was collected through the system.

Delaware's new bill proposed by Governor Markell included multiple revisions to the past bottle bill. The first revision is that the responsibility for recycling is placed on the solid waste collection companies instead of the government. While this sounds like a logical solution, it does not always provide preferable results because the waste collection companies are in the business to generate a profit. The second revision is that it establishes a Recycling Public Advisory Council to “provide oversight and recommendations on all aspects of recycling in the state” (*Delaware – past campaigns*). The third revision is that the bill creates the Recycling Grants and Low Interest Loan Program. According to *Delaware – past campaigns*, this program would help increase the recycling programs available to citizens which would make it more convenient for them to recycle. While this can be an alternative to deposit systems, it does not guarantee that citizens will participate in the program. The main reason that multiple states began

implementing bottle bills was to incentivize recycling. Consumers knew they would get their deposit money back by returning their containers to the appropriate location. Under the new system, consumers pay a 4¢ fee that they cannot get back and there is no guarantee that they will recycle the container when they are finished using it. The final goal discussed in the bill was to divert a total of 85% of total solid waste and 60% of municipal solid waste from the landfill by 2020. While there was a system implemented to track the recycling rates under the new bill, there was no data provided regarding the results.

The bill that replaced the previous bottle bill in Delaware only provided a short-term replacement strategy. The 4¢ fee ended when they reached \$22,000,000 or December 1, 2014. Then, the only thing left was to rely on consumers to recycle their containers at their local convenience center or through programs such as curbside recycling. While many consumers understand the environmental impact that litter and landfill waste creates, it is difficult to enforce recycling when it is inconvenient. Delaware's bottle bill is a tragic example of how successful bills can be replaced by less effective bills because they hope curbside recycling will be just as effective.

The solution: A federal bottle bill

The best way to address the root problem of recyclable beverage containers going to landfills is to implement one federal bottle bill. While there have been many arguments made against state bottle bills, they have been successful by increasing the number of containers that get recycled. By creating a federal bottle bill, all the states would have the same rules and regulations for deposit prices, return options, and container types that are included in the bill. The first positive result from this would be the elimination of fraud.

Since there would be one federal bottle bill, all the deposit prices would be the same. As a result, consumers would no longer be tempted to take beverage containers to other states to make money off the returns. This leads to the second positive effect because if a federal bottle bill would help the local and state governments avoid constitutional challenges that have been faced by states in the past. The third positive outcome from a federal bottle bill is that it would make the process easier on the beverage companies. Under the current laws, different states have different deposit prices for the various beverage containers. Some states have a deposit of 5¢ and others have a deposit of 10¢. Consequently, beverage companies must label each container with the states and their corresponding deposit prices. Under one federal bottle bill, the beverage companies would only need to deal with one price for each type of container because the regulations for the entire United States would be the same.

Currently proposed federal bottle bills

In March of 2021 two bottle bills were introduced in the United States Congress. These proposed bills provide an opportunity for the United States to change the way we dispose of recyclable containers. If either one is implemented, it will lead to the majority of beverage containers being diverted from landfills, roadways, and waterways and instead sent to recycling facilities where they will be turned into new products. This section will discuss each proposed bill and how it could positively impact the United States.

The CLEAN Future Act

The first bottle bill was introduced on March 2, 2021 and is called the CLEAN Future Act (*National bottle bill*). In the title of the bill, the word CLEAN stands for

Climate Leadership and Environmental Action for our Nation. According to BottleBill.org, the purpose of this bill is to “build a clean and prosperous future by addressing the climate crisis, protecting the health and welfare of all Americans, and putting the Nation on the path to a net-zero greenhouse gas economy by 2050, and for other purposes” (Pallone, 2021).

In regard to the bottle bill portion of the proposed act, this bill would create a 10¢ deposit on multiple types of beverages that are in glass, metal, or plastic containers which are 3 liters or less (*National Bottle Bill*). In order for consumers to get their deposit money back they would need to return the containers to a retail store or other redemption center. For this particular bill, any unredeemed deposits would be kept by the system administrator (*National Bottle Bill*).

While the CLEAN Future Act does include the policy regarding a deposit system for the United States, it primarily focuses on reducing the impact that Americans are having on the environment and Earth as a whole. The bill includes sections that discuss zero-emission electricity requirements, solar and hydropower programs, pollutants, carbon emissions, and so much more. Even though the CLEAN Future Act includes many positive suggestions and solutions to environmental problems that our country is facing, I do not think that it is the best one to solve the problem. First, the bill includes many other priorities and goals that are related to electricity. While this is important, it does not actually have to do with pollution that comes from beverage containers. Second, it would be difficult, if not impossible, to try to implement all of the policies included in the bill at once. This means that it is not guaranteed that the bottle bill portion of the act would be implemented right away, even if approved. As a result, it could still take years

for the bill to be enacted and begin creating an impact on the country. Finally, it is simply more difficult to achieve multiple things like this act suggests. As humans, we have limited time, money, and resources to use. This means it is important for us to choose the things that we are passionate about to use our resources to make a positive impact. Since this act is more heavily focused on clean energy and reaching net-zero emissions by 2050, it would seem more logical to focus on that instead of trying to solve every environmental problem with one act.

The Break Free from Plastic Pollution Act

The second bill that has been proposed is called The Break Free from Plastic Pollution Act (*National Bottle Bill*). The bill was originally introduced in 2020 but was reintroduced on March 25, 2021 with revisions. The purpose of this bill is as follows:

A bill to amend the Solid Waste Disposal Act to reduce the production and use of certain single-use plastic products and packaging, to improve the responsibility of producers in the design, collection, reuse, recycling, and disposal of their consumer products and packaging, to prevent pollution from consumer products and packaging from entering into animal and human food chains and waterways, and for other purposes (*National Bottle Bill*).

Similar to the CLEAN Future Act, this bill also includes multiple types of beverages that are in glass, metal, or plastic containers that are 3 liters or less (*National Bottle Bill*). The deposit price on these containers would also be 10¢. Consumers would have the ability to retrieve this deposit by returning the containers to the retail store or other redemption center. Unclaimed deposits would be kept by the producers and/or distributors (*National Bottle Bill*).

While the beverage types and deposit prices for The Break Free from Plastic Pollution Act are similar to those listed in the CLEAN Future Act, this bill is different because it focuses on the impact that plastic pollution has had on the environment and the world. Some of the steps outlined in the CLEAN Future Act are as follows: create a national bottle bill to encourage recycling and increase the rates, ban single-use plastic bags used at grocery stores, and to make large investments in the United States that would contribute to recycling and composting efforts (*The Break Free from Plastic Pollution Act*). These goals are all specifically related to problems associated with plastic pollution and the lack of recycling taking place in the United States. Since this act is specific and focused, I think it is a promising bill that could lead to positive change in our country and world.

How a successful federal bottle bill would work

The best way to address the root problem of recyclable beverage containers going to landfills is to implement one federal bottle bill. In order to implement a successful federal bottle bill, it is important to consider the details in the state bottle bills that worked and those that did not. For example, Michigan's bottle bill has continued to have the highest return rates for many years. It is evident that this is the result of Michigan's 10¢ deposit fee, compared to other states that have a 5¢ deposit fee. Another example is to determine where the unclaimed deposit money will be directed. Michigan directs 75% of their unclaimed deposits to environmental programs and 25% to retailers (*Michigan*). Other states choose to use a similar method for determining how unclaimed funds are divided, and some choose to have all funds directed back to the state. For a federal bottle bill, it would be important to determine what would happen to the unclaimed deposits.

This could mean deciding that the state would get half of the deposit money while the federal government would get the other half. Another option would be to allow the state to keep all the money and let them decide how they funds would be used. For the purpose of a federal bottle bill, I think it would be best for the state to keep 75% of their unclaimed deposits and allow them to choose what programs they need to put it towards. The other 25% that goes to the federal government can be used to fund environmental programs and litter cleanup efforts at the federal level.

Another factor to consider is how the containers will be returned so consumers can get their deposit fee back. Common methods include installing reverse vending machines at retail stores or by allowing the cashiers to process the refund by hand. Under current laws, the states get to decide the requirements for retailers to process returns. For example, in California, “full-line retailers (“beverage dealers”) who sell a variety of groceries with gross annual sales of \$2 million or more are required to redeem beverage containers on site (in-store or parking lot)” (*California*). There is an exception to this rule. A retail store is not required to accept containers if there is a state-certified redemption center located within a half-mile radius for the city, or a three-mile radius for rural areas (*California*). If the retail store does not fall into this category and does not want to accept returns, they must pay CalRecycle \$100 per day to compensate for the deposit money. To ensure the success of a federal bottle bill, I would recommend requiring larger retail stores to implement a return process that is similar to California’s law. Large retailers would have the option to install reverse vending machines or train their employees to process the returns. Smaller scale stores would have the option to utilize a return process done by their employees at the register, but it would not be

required. Since the retail stores would get to keep 25% of the unclaimed deposits, it would be a fair tradeoff for the retail stores to install reverse vending machines or train their employees to process the returns.

Another important step to ensuring the success of a federal bottle bill is to inform companies and consumers before, during, and after these changes are implemented. Considering there are only ten states in the United States that currently have state bottle bills, that means many Americans are probably unfamiliar with what a bottle bill is or what it does. It is also likely many have never even heard of this type of system before. As a result, it will be imperative to educate companies and stores about the changes to come. This could be done through many means such as commercials, news reports, interviews, online advertisements, and sharing it in schools across the country. Companies and consumers will need to understand the positive environmental impact this change will have on our planet. By providing opportunities to teach them about what it is and why it is being implemented, it also creates an opportunity for people to become passionate about it.

During the implementation of the system, news reports and interviews can be used to keep customers up to date on where some of the reverse vending machines will be located and when they will be available for use. After the system has been fully installed, it will be critical for the public to have access to the statistics of how many items are being recycled. Currently, the website available to get all information regarding the recycling rates is bottlebill.org. This website can be a great tool for people to see how their state is doing. As consumers see how many beverage containers are being recycled instead of going to the landfill, it will provide the satisfaction of knowing how the bottle

bill is reducing waste and protecting the planet. Utilizing these resources and tools will give businesses and consumers the confidence they need to know this is a beneficial system that will help preserve the environment and nature for many generations to come.

Who benefits from a federal bottle bill?

There are many incentives that would come with implementing one federal bottle bill. One party that would benefit from a federal bottle bill is the state. As mentioned before, one incentive currently in place at the state level is the ability to for states to determine where the unredeemed deposit money is sent to be utilized to improve the state. For example, Michigan's bottle bill requires that 75% of the unclaimed deposits go to the state to be used specifically for environmental programs (*Michigan*). This type of system provides incentives for both the state government and the retail stores.

Retail stores would also benefit from the implementation of a federal bottle bill. For example, one state that offers incentives to retail stores is Iowa. The process begins when the distributor charges the retail store 5¢ per eligible container. Then, the retail store charges the consumer 5¢ at the time of purchase. The consumer earns that 5¢ back when they return it to the retail store. Finally, the retail store gets reimbursed their 5¢, and then they earn an additional 1¢ per container (*Iowa*). As a result, the retail store is making money when they give containers back to the distributors. This is a great incentive for retail stores because they have to pay for reverse vending machines to be installed or pay employees to sort the containers and manually process the transactions. Even 1¢ per container over time will help the store offset the cost of the machines or the manual labor necessary to make the bottle bill successful.

In addition, the beverage industry would also benefit from a federal bottle bill because they will be meeting high environmental standards and expectations set by environmental agencies and the public. As the negative effects of litter, pollution, and landfill use become well known, many consumers look to companies who have a mission to create a positive impact on the environment. A federal bottle bill provides beverage companies with opportunities to be part of the solution to this growing problem. Beverage companies can use the bottle bill as a marketing strategy to inform consumers that they are using products that will be recycled to create new products. This can give consumers the knowledge and encouragement necessary to make the transition to a federal bottle bill easier. If consumers understand how this change will create a long-lasting positive impact on the environment and know that it has the support of beverage companies, the transition will be a lot smoother for everyone involved. The passage and implementation of a federal bottle bill has the potential to yield high success rates when the transition takes place and continues over an extended period of time.

Companies that create the reverse vending machines will also benefit from a federal bottle bill. More reverse vending machines would need to be made for retail stores and other drop-off locations. This would help create jobs for the reverse vending machine companies since many would need to be built, installed, and repaired in the future. Truck drivers would also be necessary to pick up the empty beverage containers that would be ready for recycling.

Conclusion

The United States is faced with a growing problem due to the lack of recycling, increased litter, and a lack of landfill space. Bottle bills have served as solutions to this

problem in some of states over the past few decades. Some of the state bottle bills have been more successful than others, but all of them have provided trials, results, and ideas that can be used to create one federal bottle bill that can drastically increase the recycling rates across the country.

While the United States has faced the growing issue of increased litter and use of landfill space, a federal bottle bill can provide a solution to preserve the environment that we have. A federal bottle bill will benefit multiple parties involved. For example, states will benefit because it will provide them with an extra income from unclaimed deposits to use for environmental programs. It will also benefit the beverage companies because they will only have to work with one set of regulations regarding deposit prices. However, the ultimate benefit of implementing a federal bottle bill will be the increased number of beverage containers that will be recycled and kept out of landfills and waterways.

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