Extended Producer Responsibility





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- Improve the quality and effectiveness of state legislatures.
- Promote policy innovation and communication among state legislatures.
- Ensure state legislatures a strong, cohesive voice in the federal system.

The conference operates from offices in Denver, Colorado and Washington, D.C.

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Over the past two decades, state lawmakers have demonstrated growing interest in extended producer responsibility, or EPR, enacting hundreds of laws across dozens of product categories. The early focus on products that were expensive to handle or hazardous like electronics, paint and mercury thermostats has now extended to a broader set of waste such as plastic packaging and paper products.

What is Extended Producer Responsibility?

This report addresses:

- Goals of EPR
- State Action
 - Electronics
 - Paint
 - Batteries
 - Packaging
- Federal Action
- Policy Considerations

Extended producer responsibility (EPR) is a policy approach that assigns producers greater responsibility for the end-of-life management of the products they introduce to the market and encourages innovations in product design. EPR is sometimes thought of as a mandatory type of product stewardship.

Goals of EPR

EPR programs aim to achieve multiple objectives, including:

Waste reduction

EPR promotes an approach to managing materials whereby products that might have been destined for the landfill are recovered, recycled and reused to make new products at higher rates.

· Reduced public spending on waste management

Requiring producers to pay for recycling rather than local governments can provide greater stability and allow taxpayer money to be used on other services. Moreover, internalizing the costs associated with recycling can encourage producers to reduce overall costs by creating a more efficient system.

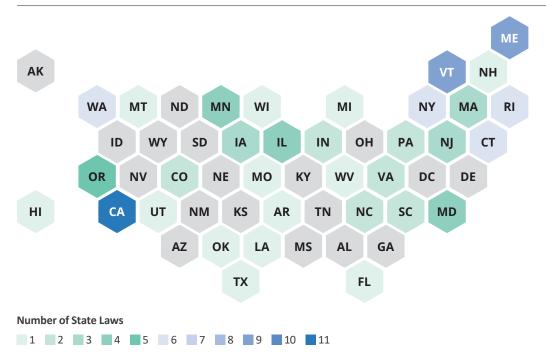
Innovations in product design

EPR seeks to incentivize producers to design products that have minimal environmental impact throughout their life cycle starting with the raw materials and feedstocks used in production, and maximum reuse, recycling and reduction opportunities.

State Action

Over the past two decades, state lawmakers have demonstrated growing interest in EPR. According to the Product Stewardship Institute, 35 states and the District of Columbia have enacted 135 laws across 18 product categories. The products that have been most often addressed through EPR include electronics, mercury thermostats, batteries, pharmaceuticals, paint, fluorescent lighting and mattresses.

Number of EPR Laws by State



Based on an analysis by the Product Stewardship Institute

From 2020-2022, at least 76 EPR bills were introduced in 18 states and the District of Columbia. Seventeen states have introduced legislation thus far in 2023. Packaging is the most common product covered in this recent wave of activity, though states are also considering EPR for solar panels, lithium-ion batteries, carpet, gas cylinders, textiles, and more.

ELECTRONICS

While EPR for packaging is capturing many headlines today, states have been active in this policy area for years, the best example of which may be electronics.

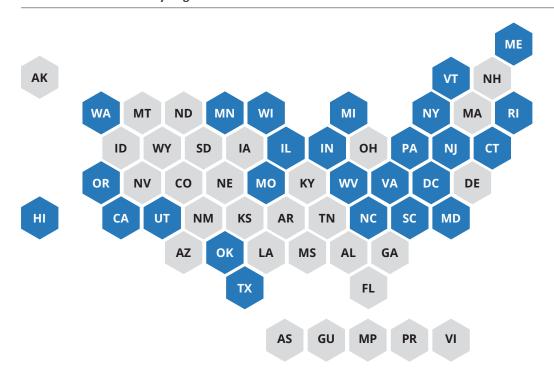
Americans today own approximately 22 electronic devices per household and annual sales in the U.S. are greater than \$500 billion. Televisions, tablets, phones and computers make up the majority of devices, but fitness trackers and smart home systems are gaining ground. The rapid increase in consumer electronics purchases has created a growing stream of used devices in need of appropriate management.

In 2018, EPA estimated that consumers discarded 2.7 million tons of electronics, down from a high of 3.1 million tons in 2015. Approximately 38 percent of these electronics were collected for recycling. The rest were incinerated or ended up in landfills, thereby depriving recyclers of the ability to recover valuable materials (e.g. gold, silver, copper, palladium) and increasing the likelihood of flame retardants and heavy metals (e.g., lead, mercury, nickel, and cadmium) being released into the environment.



The Maine Legislature enacted the first electronics EPR law in the country in 2004 (LB 1892). It creates a shared responsibility system for household e-waste that takes into account the existing municipal solid waste management infrastructure as well as private sector management companies known as consolidators. Devices covered include 3D printers, computers, digital frames, e-readers, game consoles, laptops, monitors, portable DVD players, printers, tablets, televisions and virtual reality headsets. Municipalities provide their residents with collection opportunities and arrange for a state-approved consolidator to pick up the e-waste to be recycled. Consolidators perform an accounting of all devices received and invoice manufacturers for their share. Materials are then sent to a recycler that meets certain environmental standards. Manufacturers must register with the department of environmental protection and pay an annual fee. Retailers may only sell products of manufacturers in compliance with the law. From January 2006 through December 2021, residents recycled nearly 103 million pounds of electronics.

States with Electronics Recycling Laws



Following the example set in Maine, many states adopted their own e-waste recycling programs. Today 25 states and the District of Columbia have electronics recycling laws. Twenty-three can be categorized as EPR with manufacturers paying for the costs of recycling. The other two states—California and Utah—operate programs more akin to product stewardship. California uses an advanced recycling fee model for electronics, whereby consumers are assessed a \$6 to \$10 fee at the time of purchase which is deposited into a statewide recycling fund. The Utah program is voluntary.

State	Statute Citation	Year	Covered Devices	
California	Cal. Pub. Res. Code §§42460 to 42486	2003	CRT Monitor, CRT TV, Flat Panel/LCD Monitors, Flat Panel/LCD TV, Laptops, LCD Laptops, LCD-containing Smart Displays, LCD-containing Tablets, OLED-containing desktop monitors, OLED-containing laptop computers, OLED-containing Tablets, Organic light-emitting diode (OLED)-containing TVs, Plasma Televisions, Portable DVD players with LCD screens, Tablets	
Connecticut	Conn. Gen. Stat. §§22a-629 to 22a-640	2007	Computers, Monitors, Printers, Televisions	
District of Columbia	D.C. Code §§8-1041.01 to 8-1041.12	2014	All-in-One Computer, Cable and Satellite Receivers, Computer Speakers, Desktops, DVD players, DVRs, E-readers, Game Consoles, Keyboards, Laptops, Mice, Monitors, Portable Music/Media Player, Printers, Servers, Signal Converter Box, Tablets, Televisions, VCRs	
Hawaii	Hawaii Rev. Stat. §§339d-2 to 339d-6	2008	Desktops, E-readers, Laptops, Monitors, Printers, Tablets, Televisions	
Illinois	III. Rev. Stat. ch. 415, §§150/1 to 150/999	2008	Computers, Desktops, Digital Converter Boxes, DVD players, E-readers, Fax, Game Consoles, Keyboards, Laptops, Mice, Monitors, Portable DVD, Portable Music/Media Player, Printers, Scanners, Servers, Tablets, Televisions, VCRs	
Indiana	Ind. Code §§13-20.5-1-1 to 13-20.5-10-2	2009	E-readers, Laptops, Monitors, Tablets, Televisions	
Maine	Me. Rev. Stat. tit. 38, §1610	2004	3D Printer, All-in-One Computer, Digital Frames, E-readers, Game Consoles, Laptops, Monitors, Portable DVD, Printers, Security Monitors, Tablets, Televisions, Virtual Reality Headsets	
Maryland	Md. Envt. Code §§9-1727 to 9-1730	2005	Cell Phones, Desktops, E-readers, Laptops, Monitors, Tablets, Televisions	
Michigan	Mich. Comp. Laws §§324.17301 to 324.17333	2008	Desktops, Laptops, Monitors, Printers, Tablets, Televisions	
Minnesota	Minn. Stat. §§115a.1310 to 115a.1330	2007	Monitors, Televisions	
Missouri	Mo. Rev. Stat. §§260.1050 to 260.1101	2008	Desktops, E-readers, Laptops, Monitors, Tablets	
New Jersey	N.J. Rev. Stat. §§13:1E-99.94 to 13:1E-99.114I	2008	Computers, Desktop Printers, Fax, Monitors, Printers, Televisions	
New York	N.Y. Environmental Conservation Law §§27-2601 to 27-2621	2010	CRT Monitor, Desktops, E-device power cords and chargers, E-readers, External Hard Drive, Flat Panel/LCD Monitors, Game Consoles, Keyboards, Mice, Monitors, Portable DVD, Portable Music/Media Player, Printers, Scanners, Servers, Tablets	

North Carolina	N.C. Gen. Stat. §§130A-309.130 to 130A-309.141	2007	Desktops, Game Consoles, Laptops, Monitors, Multi-function Device, Printers, Scanners, Tablets, Televisions, Virtual Reality Headsets	
Oklahoma	Okla. Stat. tit. 27A, §§2-11-601 to 2-11-611	2008	Desktops, E-readers, Laptops, Tablets	
Oregon	Or. Rev. Stat. §§459a.300 to 459a.365	2007	Desktops, E-readers, Keyboards, Laptops, Mice, Monitors, Printers, Tablets, Televisions	
Pennsylvania	Pa. Cons. Stat. tit. 35, §§6031.101 to 6031.702	2010	Desktops, E-readers, Keyboards, Laptops, Monitors, Printers, Tablets, Televisions	
Rhode Island	R.I. Gen. Laws §§23-24.10-1 to 23-24.10-17	2008	Computers, Monitors, Tablets, Televisions	
South Carolina	S.C. Code Ann. §§48-60-05 to 48-60-150	2010	Desktops, Laptops, Monitors, Printers, Televisions	
Texas	Tex. Health and Safety Code Ann. §§361.951 to 361.966	2007	Desktops, Keyboards, Laptops, Monitors, Tablets, Televisions	
Utah	Utah Code Ann. §§19-6-1201 to 19-6-1205	2011	Desktops, E-readers, Keyboards, Laptops, Monitors, Portable DVD, Printers, Tablets, Televisions	
Vermont	Vt. Stat. Ann. tit. 10, §§7551 to 7564	2010	Desktops, Laptops, Monitors, Printers, Tablets, Televisions	
Virginia	Va. Code §§10.1-1425.27 to 10.1-1425.38	2008	Desktops, Keyboards, Laptops, Monitors	
Washington	Wash. Rev. Code Ann. §§70.95n.010 to 70.95n.902	2006	Desktops, E-readers, Laptops, Monitors, Portable DVD, Tablets, Televisions	
West Virginia	W.Va. Code §§22-15A-22 to 22-15A-28	2008	Cell Phones, Desktops, Laptops, Monitors, Smart Displays, Tablets, Televisions	
Wisconsin	Wis. Stat. §287.17	2009	Desktops, E-readers, Laptops, Monitors, Servers, Tablets, Televisions	

Electronics EPR laws were some of the first in the U.S. and have been amended over the years in an effort to keep pace with changing markets and innovations that have made some products lighter, harder to take apart, and with less volume of valuable materials to extract. Laws have been updated in California, Hawaii, Illinois, South Carolina and the District of Columbia in recent years.

Illinois began collecting electronics statewide in 2008, but issues with supply and cost allocation, among other things, led to the passage of the Consumer Electronics Recycling Act in 2017 which modernized many elements of the program. It removed the focus on pounds collected by manufacturers and placed greater emphasis on increasing the number of collection sites and ensuring they are maintained regardless of the volume coming in. It also divided the 17 types of covered electronic devices into eight categories, which manufacturers use to determine market share, return share, and to satisfy end-of-year reporting requirements.

In 2020, manufacturers reported approximately 12.3 million pounds of devices collected. Televisions accounted for the majority of the weight collected (54.8%), followed by printers/scanners/fax machines (13.9%), DVD and VCR players/recorders (11.2%), and computers and small-scale servers (7.2%).

South Carolina made similar changes to its electronics recycling law in 2022, eliminating weight targets and setting up easier access to drop-off sites (HB 4775).

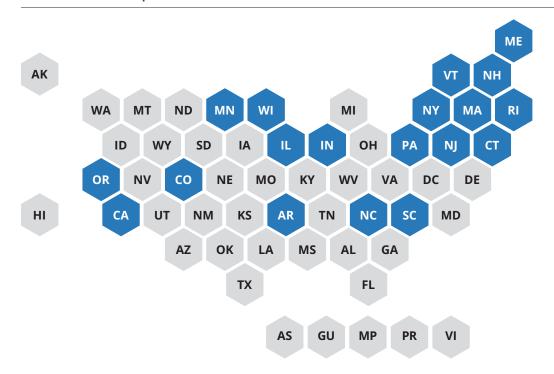
Hawaii made significant changes to e-waste recycling in 2022 as well. House Bill 1640 required full funding from manufacturers, avoiding a situation that occurred earlier in the year when limited funds forced the state to suspend the program. The bill also added commercial collection and set collection targets for manufacturers, a difference from Illinois and South Carolina.

States are also considering legislation targeting specific types of electronics. This year, legislation was introduced in Maine (vehicle diagnostic systems), Oregon (consumer electronics) and Washington (appliances).

Landfill Bans

Landfill bans are another policy option often used in tandem with mandated e-waste recycling. Nineteen states and the District of Columbia have laws that expressly prevent the disposal of electronic devices in landfills. Others may classify electronics as hazardous waste (ex. Delaware, Florida).

States That Prohibit Disposal of Electronic Devices in Landfills



Massachusetts made it illegal to dispose of CRTs—the glass picture tubes in older televisions and computer screens—in landfills in 2000. In 2003, California enacted legislation governing other forms of e-waste, including a broader waste ban (SB 50). Colorado began enforcing a ban in 2013 (SB 133). Counties that do not have at least two electronic recycling events per year or an ongoing electronic waste recycling program may vote to opt-out of the ban.



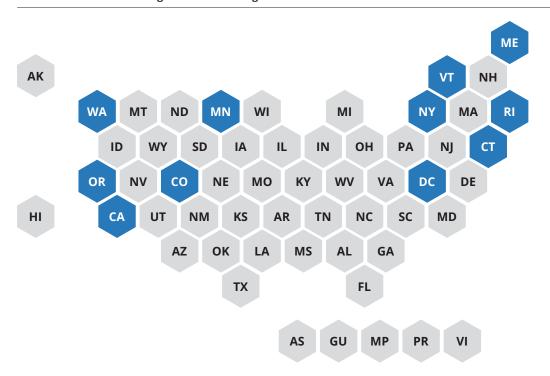


PAINT

Along with electronics, paint was also an early candidate for EPR. Americans generate around 78 million gallons of leftover latex and oil-based paint each year, or 10% of all paint purchased. Leftover paint can harm the environment if not managed properly, i.e. thrown in the trash or down the drain.

Today, 10 states and the District of Columbia have passed legislation governing paint EPR, and the nonprofit PaintCare operates each program. The American Coatings Association manages PaintCare with funding from paint manufacturers, who pass the costs on to stores stocking their products. The stores charge customers around 75 cents per gallon and PaintCare uses these funds to manage the leftover paint. Since the first state law passed in Oregon in 2009, the organization has collected 64.4 million gallons of paint, provided 8,069 large volume pickups, and hosted 319 drop-off events.

States That Have Passed Legislation Governing Paint EPR



New York established its Postconsumer Paint Collection Program in 2019 with passage of SB 4351. The law requires paint producers to collect, transport, reuse, recycle and properly dispose of postconsumer paint in an environmentally sound manner. It applies to "architectural paint," and includes interior and exterior architectural coatings sold in containers of five gallons or less including house paint and primers (latex or oil-based), stains, deck and concrete sealers and clear finishes (varnishes, shellacs). Architectural paint does not include industrial, original equipment or specialty coatings.

State	Statute Citation
California	Cal. Pub. Res. §§ 48700 to 48706
Colorado	Colo. Rev. Stat. §§ 25-17-401 to 25-17-410
Connecticut	Conn. Gen. Stat. §§ 22a-904 to 22a-904a
District of Colombia	D.C. Code Ann §§ 8-233.01 to 8-233.06
Maine	Me. Rev. Stat. Ann. §2144
Minnesota	Minn. Stat. §115A.1415
New York	N.Y. Environmental Conservation Law § 27-2003
Oregon	Or. Rev. Stat. §459A.825
Rhode Island	R.I. Gen. Laws §23-24.12-3.
Vermont	Vt. Stat. Ann. Tit. 10 §6673
Washington	Wash. Rev. Code §70.375.030

BATTERIES

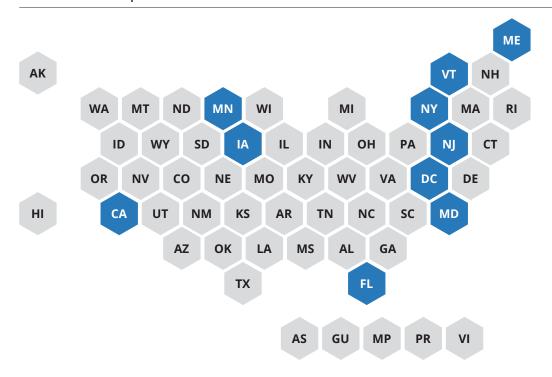
Batteries are another product that state legislatures have considered for EPR. Left in a landfill, batteries of any kind can release hazardous components like cadmium, lead and mercury into the soil and groundwater. And lithium-ion batteries—used to power many personal electronics, vaping devices, scooters, e-bikes and electric vehicles—can catch fire or explode, causing damage and endangering the lives of workers. Recycling batteries can save natural resources (e.g. steel, manganese, zinc), reduce environmental impacts, and prevent safety hazards.



At least eight states and the District of Columbia have adopted EPR for batteries. The laws vary in scope, covering one or more of the following battery types:

	Nickel-Cadmium	Found in power tools, two-way radios, digital and video cameras, cordless phones
Rechargeable	Small Sealed Lead Acid	Found in emergency devices, ride-on toys, security systems, mobility scooters
	Lithium-lon	Found in power tools, cell phones, laptops, vaping devices, toys, appliances, e-bikes
Non-Rechargeable	Primary/Single-Use	Found in flashlights, clocks/watches, smoke detectors, remote controls, toys

States That Have Adopted EPR for Batteries



The first battery EPR bill was signed into law in Vermont in 2014 (HB 695). The law applies to all primary batteries, defined as non-rechargeable batteries weighing two kilograms or less, including alkaline, carbonzinc and lithium metal batteries. Call2Recycle, Inc. has managed the primary battery program on behalf of obligated producers since 2016. As of 2019, there are 274 collection sites across the state that offer 98% of residents access to a site within 10 miles of their home.

In 2021, the District of Columbia established an EPR program for all batteries, including both single-use and rechargeable types (B 506). The law also accounts for battery-containing products where the battery cannot be removed at the time of disposal.

The California Legislature passed two bills in 2022 to improve and expand battery recycling. Assembly Bill 2240 sunsets the existing Cell Phone Recycling Act of 2004 and the Rechargeable Battery Act of 2006, creating a single EPR program for batteries. Senate Bill 1215 amends the definition of "covered electronic device" within the existing electronic waste law to include battery-embedded products such as smartphones, tablets, laptop computers, digital cameras, game consoles and cordless power tools.

Washington passed a battery EPR bill this year. Senate Bill 5144 requires battery producers to fund and participate in a statewide stewardship program to boost recycling rates, similar to EPR for other products. Producers would also be required to conduct educational outreach around the importance of battery recycling. The program covers portable batteries to start, defined as primary or rechargeable covered batteries of a certain weight. Beginning in 2029, the program will expand to medium format batteries. The state currently runs a voluntary rechargeable battery recycling program, but drop-off sites are limited.

Until recently there were no lithium-ion battery recyclers located in the U.S. Today there are at least four—Redwood Materials (Nevada), ABTC (Nevada), Li-Cycle (New York), Ascend Elements (Massachusetts/Georgia). Recycling capacity has not kept pace with battery production in part because it takes years of operating an electric vehicle before its battery pack needs to be disposed of. But investment has grown tremendously in the last few years along with demand for the batteries. The revamped electric vehicle tax credits also call for increasing shares of domestically sourced batteries and battery materials.

PACKAGING

The concept of EPR took hold in Europe in the 1990s with packaging as an early focal point. It now exists worldwide, including in Canada, Japan, the Republic of Korea, India, Australia (voluntary) and Chile. In the U.S., five states—California, Colorado, Maine, Maryland and Oregon—have enacted EPR legislation aimed at packaging materials in the past two years. Maryland Senate Bill 222, enacted in May 2023, calls for a needs assessment, not a full EPR system.

Maine was the first U.S. state to pass EPR for packaging in July 2021 (LD 1541), the purpose of which is to reduce the volume and toxicity and increase the recycling of packaging material. Producers of products will pay into a fund based on the net amount and the recyclability of packaging associated with their products. The funds will be used to reimburse municipalities that choose to participate in the program for eligible recycling and waste management costs, make investments in recycling infrastructure, and help citizens understand how to recycle. The program will be run by a stewardship organization selected by the state through a competitive bidding process. The law exempts any producers that, in the prior calendar year, realized less than \$2,000,000 in total gross revenue, used less than one ton of packaging material, sold a significant amount of goods acquired through insurance salvages, bankruptcies, etc., or sold perishable food using less than 15 tons of packaging material.

Oregon became the second state to pass an EPR for packaging law in Aug. 2021 (SB 582). Known as the Plastic Pollution and Recycling Modernization Act, the law requires producers of packaging, printed paper and food serviceware to join a Producer Responsibility Organization (PRO) that will ensure improved and expanded recycling services, particularly for rural communities and multi-family housing. PROs will also fund waste prevention grants and several studies related to equity in the recycling system, as well as litter and marine debris. The law outlines responsibilities of local governments and commingled recycling processing facilities and sets goals for the statewide plastic recycling rate. It directs the department of environmental quality to create a uniform statewide collection list and establishes the Truth in Labeling Task Force to study and evaluate claims made about recyclability of products.

Agencies in both states acknowledge that the implementation process will be lengthy with extensive planning, research, rulemaking and engagement with interested parties. The Oregon Department of Environmental Quality's EPR rulemaking advisory committee met for the first time in July 2022. And Maine held the first in a series of stakeholder meetings in Dec. 2022. There will be a minimum of two meetings per topic, with five topics outlined: exemptions; municipal reimbursements; recyclability, auditing and program goals; education and investment; and payments and reporting.

Each of the four states with EPR for packaging laws have somewhat different approaches. See the chart below, adapted from the American Institute for Packaging and the Environment (AMERIPEN). The Product Stewardship Institute also provides a comparison tool for the various programs. The largest differences are found in how the programs are managed and paid for.

	California	Colorado	Maine	Oregon
Bill Number	SB 54	HB 1355	LD 1541	SB 582
Signed Into Law	06/30/2022	06/03/2022	07/12/2021	08/06/2021
Products Covered	Packaging, plastic food serviceware	Packaging, printed and other paper	Packaging	Packaging, printed paper, food serviceware
Producer Responsibility Org. (PRO)	Multiple possible after 2030	Multiple possible after 2028	Single under state contract	Multiple possible immediately
Producer Funding of System	100% expanded	100% current/ expanded	100% current/ expanded	30% expanded
Producer Fees	Developed by PRO	Developed by PRO	Developed by state	Developed by PRO
Eco-Modulation	Allowed – PRO develops	Allowed – state develops	Allowed – PRO develops	Allowed – PRO develops
E-Commerce	Included-defined	Included-undefined	Included-undefined	Included-defined
Recycling Goals	In law for plastic	PRO develops	State develops	In law for plastic
Source Reduction	In law for plastic – 25%	Not specifically	Not specifically	Not specifically
Producer Compliance	January 2027	July 2025	Fall 2026	July 2025

Based on an analysis from AMERIPEN, the American Institute for Packaging and the Environment





Bottle Bills

Beverage container deposit laws, or bottle bills, are designed to reduce litter and capture bottles, cans and other containers for recycling. Ten states and Guam have a deposit-refund system for beverage containers, many in operation since the 1970s and 80s—California, Connecticut, Hawaii, Iowa, Maine, Massachusetts, Michigan, New York, Oregon, Vermont.

When a retailer buys beverages from a distributor, a deposit is paid to the distributor for each container purchased. The consumer pays the deposit to the retailer when buying the beverage and receives a refund when the empty container is returned to a supermarket or other redemption center. The distributor then reimburses the retailer or redemption center the deposit amount for each container, plus an additional handling fee in most states. Unredeemed deposits are either returned to the state, retained by distributors, or used for program administration.

Bottle bills are generally considered separate from EPR bills, but the two can go hand in hand. Bottle bills can encourage changes in production and design of beverage containers. For example, California Assembly Bill 891, currently pending, would offer beverage manufacturers a reduction in the processing fee imposed as part of the state's bottle bill if the container is derived from nonpetroleum biomaterials, including agricultural crop residues, leaves, wood, nonrecyclable pulp and paper materials, cotton waste products, etc.

Beverage container caps are also evolving. These caps have historically been made from aluminum, polypropylene (PP), and high density polyethylene (HDPE)—different from the bottles themselves which are often made of the more easily recycled polyethylene terephthalate (PET). Mixing materials can complicate the recycling process and reduce the value of the recycled material as most recycling infrastructure is devoted to high-value PET. A tethered closure that allows the cap to remain intact with the bottle can prevent loose or uncoupled caps from becoming waste or litter. Tethers are currently made from a variety of non-PET materials that match the cap, but that may change with the development of a mono-material PET container. A fully PET container would allow the entire package to be processed together, resulting in numerous benefits including a more circular economy for plastics.



Federal Action

There is currently no national EPR law. The Break Free from Plastic Pollution Act of 2021 (S. 984/H.R. 2238), sponsored by Sen. Jeff Merkley (D-OR) and Rep. Alan Lowenthal (D-CA), was considered in the 177th Congress. The bill would have created EPR for packaging, paper, single-use products, beverage containers and food service products. The same year Sen. Sheldon Whitehouse introduced S.2645, Rewarding Efforts to Decrease Unrecycled Contaminants in Ecosystems (REDUCE) Act. The bill would have imposed a 10-cent (leading to 20-cent) per pound tax on the sale of petroleum-based virgin plastic used for single-use products. Renewable-based plastic would not be taxed.

Policy Considerations

While no two laws are the same, there are certain considerations that policymakers will likely encounter when it comes to EPR:

- 1. What products are covered?
- 2. Would a needs assessment be useful?
- 3. Who is responsible for managing the program?
- 4. How will the program be financed?
- 5. What are the guidelines around PROs?
- 6. What incentives can be provided to encourage environmentally conscious designs?
- 7. Will eco-modulated fees be utilized?
- 8. What are the roles of stakeholders—governments, retailers, consumers, haulers recyclers?
- 9. What will government oversight look like?
- 10. Will there be a public education component?
- 11. What are the penalties for noncompliance?
- 12. How will success be measured?

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