Producer Responsibility Program for Statewide Recycling

Recommendation Prepared for the Joint Budget Committee

March 12, 2024



COLORADO

Department of Public Health & Environment

What is EPR?

A policy approach and practice in which producers take responsibility for management of the products and/or packaging they produce at the end of their useful life.





265 million people

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HB22-1355 Goals



Increase recycling & reuse



Strengthen local supply chain

Save local governments money

Statewide collection

list

ADED & CARDEO



Decrease climate pollution







Free & equitable recycling for all



Education & outreach

PRO Founding Members

The State of Colorado designated Circular Action Alliance as the Producer Responsibility Organization (PRO) in May of 2023 to coordinate, fund, and manage this statewide recycling system.



Program Timeline



Needs Assessment Requirements

This needs assessment is part of the program's goal to develop a convenient, cost-effective program that provides free and equitable recycling of packaging and paper products for all Coloradans.

Circular Action Alliance was required to conduct a needs assessment which:

Evaluates the recycling infrastructure, services, and costs throughout all geographic areas of the state

Proposes a standardized list of materials to be accepted at all recycling facilities Proposes three scenarios for increasing Colorado's collection and recycling rates by 2030 and 2035, and the anticipated costs associated with each

Needs Assessment Objectives

- In-depth study assessing Colorado's existing recycling systems and identifying opportunities for growth and improvement of the system
- Foundation for establishing goals and cost estimates for the PRO's program plan
- HB22-1355 specifies components that the needs assessment must analyze, which the consultant broke into the following elements:
 - Element 1 Residential Collection
 - Element 2 Service Costs
 - Element 3 Demographics
 - Element 4 Contamination
 - Element 5 Nonresidential Collection
 - Element 6 Processing Capacity
 - Element 7 Opportunities & Costs

- Element 8 Minimum Recyclables List & Additional Materials
- Element 9 End Markets
- Element 10 New Technologies
- Element 11 Reuse and Refill
- Element 12 Education
- Element 13 Scenarios & Exemptions Impacts
- Element 14 Compost

Needs Assessment Findings

ONLY *25%

of consumer packaging and paper products in Colorado are being recycled today

ONLY 20% OF HOUSEHOLDS

in rural areas currently have curbside recycling services

10 - 20% CONTAMINATION RATES

were reported at recycling & compost facilities

Hospitality locations in Colorado reported a generation rate of 20 - 50% RECYCLABLE MATERIALS

Colorado currently has 52 EXISTING REUSE & REFILL OPERATIONS

Colorado recycling facilities have the potential to INCREASE EXISTING RECYCLING CAPACITY by 60%

Projected Scenarios

- Develop 3 scenarios and estimate their impacts on collection and recycling rates of covered materials in Colorado, to be met by 2030 and 2035, including associated operating and capital costs
- Modeling is a culmination of findings from the other elements
- Identified factors that impact collection and costs:
 - Access
 - Collection
 - Materials
 - Education
 - Infrastructure
 - Waste generation
- Using these factors, "low", "medium", and "high" scenarios were developed



Access

Control	Control Options		Low	Medium	High	
Access						
Residential recycling access equivalency to trash	Achieved by 2030		Achieved by 2030	Achieved by 2030	Achieved by 2030	
Recycling for non-residential covered entities	Offered to all by 2030		Offered to all by 2030	Offered to all by 2030	Offered to all by 2030	

Collection

Control	Control Options	Low	Medium	High
Collection method for newly provided service (no changes to existing service)	Single stream	Single stream	Single stream	Single stream
Frequency of collection	No change to existing, Weekly, Bi-weekly for new service & existing	No change to existing, Bi-weekly for new service	Weekly in Front Range, Bi-weekly in other regions	Weekly in all regions
Efficiencies in collection routes	Minor, Medium, Major	Minor	Medium	Medium

Materials

Control	Control Options		Low	Medium	High			
Materials								
Collection of hard to recycle	Drop Off,		Drop off by 2030,	Drop off by 2030,	Drop off by 2030,			
packaging	Events		Events	Events	Events			
Minimum recyclables list collection	achieve goal by 2030 or 2035		2030	2030	2030			
Additional materials list collection	achieve goal by 2030 or 2035		2030	2030	2030			

Materials

Control	Control Options		Low	Medium	High			
	Materials							
Flexible plastics collection	None, Curbside, Drop off		None	Drop off by 2035	Drop off and curbside by 2035			
Glass collection and glass clean up systems installed at MRFs	Current, Curbside, Drop-Off		Curbside, Drop-off	Curbside, Drop-Off	Curbside, Drop-Off			

Infrastructure

Control	Control Options	Low	Medium	High
		Infrastructure		
Drop off sites	Expand, new	Expand all regions; New in Mountains, Eastern, and Western	Expand and new in all regions	Expand and new in all regions
MRF upgrades	Low, Medium. High	Medium (\$15m)	Medium/High (\$85m)	High (\$100m)
Composting facility upgrades	Low, Medium, High	Low (\$25m)	Medium (\$50m)	High (\$100m)
Flexible Film Processing	Low, Medium, High	None	None	High (\$50m)

Projected Scenarios - Results

Statewide Estimated Recyclin	ng Rates & Performance/Cost	2030	2035
	Recycling rate (%)	35% - 41%	48% - 54%
Low	Recycling rate (k tons)	490	670
LOW	% Performance increase over baseline	51%	102%
	% Cost increase over baseline	44%	69%
	Recycling rate (%)	38% - 44%	52% - 58%
Madium	Recycling rate (k tons)	530	720
	% Performance increase over baseline	62%	119%
	% Cost increase over baseline	72%	105%
	Recycling rate (%)	39% - 45%	54% - 60%
Hich	Recycling rate (k tons)	540	750
	% Performance increase over baseline	66%	127%
	% Cost increase over baseline	75%	125%

Projected Scenarios - Producer Costs

Projected I	PRO Implementation Costs	2022 AVG	2030 AVG	2035 AVG
	Total Annualized Cost (\$ million)	110	170	210
Low	PRO Cost Per Household (\$)	75	80	95
	PRO Cost Per Ton Recycled (\$)	345	355	310
Medium	Total Annualized Cost (\$ million)	110	210	250
	PRO Cost Per Household (\$)	75	95	115
	PRO Cost Per Ton Recycled (\$)	345	395	350
	Total Annualized Cost (\$ million)	110	210	275
High	PRO Cost Per Household (\$)	75	95	125
	PRO Cost Per Ton Recycled (\$)	345	395	365

- Program funding is managed by the PRO and funded by producers
- There is no monetary request by the state for this program
- "Cost per household" is a per unit implementation cost for the PRO

Projected Scenarios - Opportunities

- Increase recycling from 25% up to 60% for consumer packaging / paper by 2035
- 500,000 additional households in municipalities will receive curbside recycling services
- 100,000 200,000 additional households will receive recycling service in other in census-designated places and rural areas
 - Areas with lowest income per capita will experience largest increase in access
 - Multi-family housing and rural communities experience increase in access
- Standardized list for recycling with consistent statewide education
- Recycling an *additional* 350,000 440,000 tons per year by 2035
- End market expansion, particularly for glass, creating closed-loop systems



Producer Responsibility Advisory Board Input

13 Advisory Board meetings reviewing elements of the needs assessment

- Comments from Board members:
 - Proposed list of materials:
 - Background information on how scoring was completed
 - Thermoforms, glass, flexible plastic, metals, compostable packaging
 - Collection & processing investments needed with infrastructure:
 - Material recovery facilities (MRFs), secondary processing facilities, compost facilities
 - Need more variability in scenarios
 - Need glass investments starting in low scenario, with more options for collections
 - Compost element:
 - More investment in source separation, rather than back-end sorting
 - Calculation of contamination is different with compostables than it is for minimum recyclables list
- One board member recommends the medium or high scenario; one board member recommends any of the scenarios

Public Comment

Over 100 public comments were received on the needs assessment

- Majority of comments expressed strong support, including:
 - Convenience for consumers: Increasing equitable access to recycling will have a dramatic impact
 - Cost effective and efficient: Local governments, communities, households, & businesses will benefit & save money
 - Environmental outcomes and sustainability: Producers will have reliable supply chains for domestic recycled material to meet their sustainability goals and lead to a circular economy, by incentivizing materials with lower environmental impacts
- 5% of comments expressed opposition or concern, including:
 - Infrastructure buildout: Capital costs are estimated and may be higher; adding staff and capital resources will take time
 - Implementation details: Additional implementation details, including producer dues and service provider reimbursement formulas, and have yet to be developed (Note: Dues and formulas will be addressed under the program plan)
 Scenario support from public comments

	- p
Low	2
Medium	5* (one letter signed by 10 NGOs)
High	3

The Department recommends selecting the **medium scenario**

Recommendation basis:

- Recycling rate increases from 25% to 44% by 2030 and up to 58% by 2035
- Program performance exceeds program cost (% increase) in the medium scenario
- Adds the option for weekly curbside recycling for the Front Range region, where over 80% of the waste in Colorado is generated, with existing infrastructure
- Develops convenient access and equitable recycling services in rural regions, while allowing for a phased buildout of infrastructure and collection resources
- Funding for recycling facility upgrades results in increased efficiency, including glass recovery for a closed-loop system
- Funding for compost facility equipment upgrades to manage contamination and produce high-quality products

Medium scenario economic impacts: Jobs creation

Direct & indirect jobs associated with management of covered materials:

	2030	2035
Low	5,500	7,200
Medium	5,700	7,900
High	6,100	8,600

Economic impact estimated from 410,000 additional tons recycled annually

• \$31 million increase in annual wages

Medium scenario economic impacts: Local governments

Total cost savings for City and County of Denver expected with EPR are estimated at **\$14.2 million in 2030** and up to **\$16.3 million in 2035**



Medium scenario environmental impacts

Waste Diversion:

- 720,000 tons of covered materials recycled annually by 2035
- 410,000 additional tons recycled under the program
- 119% increase from 2022 baseline recycling



Greenhouse Gas Emissions Avoided:

- Additional 1.3 million metric tons of CO₂e avoided annually from baseline
- Emissions equivalent to 278,000 additional cars removed annually by 2035

Summary

The medium scenario will:

- Increase recycling rates of paper and packaging from ~25% up to 58% by 2035
- Expand curbside recycling to 500,000 additional households, at no cost to residents or the state
- Reduce waste by 410,000 tons annually by 2035
- Reduce emissions equivalent to over 280,000 vehicles annually by 2035
- Result in new jobs in the circular economy

Strong support for the medium scenario was received in public comments, and the Department firmly believes the medium scenario is the best option to advance recycling in Colorado

The Department recommends the medium scenario for Circular Action Alliance to implement within the program plan



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Questions?



Appendix: Additional Information

Proposed Minimum Recyclables List

	Packaging Type	Collection Method
1.1	Paper for General Use (uncoated)	Curbside
	"Low grade" Printing and Writing Paper (e.g., bulk mail,	
1.2	envelopes, notebooks, cards)	Curbside
1.3	Other Printed Paper (e.g., flyers, calendars, brochures)	Curbside
1.4	Newspaper, Newsprint	Curbside
1.5	Magazines and Other Coated Paper (e.g., catalogs)	Curbside
1.6	Bound Directories (e.g., telephone)	Curbside
1.7	Packaging Paper	Curbside
1.9	Corrugated Cardboard (except wax coated)	Curbside
	Kraft Packaging (e.g., paper padded mailers, grocery	
1.11	bags)	Curbside
1.12	Paperboard Boxes and Packaging	Curbside
	Molded Pulp Packaging excluding Food Serviceware	
1.13	(e.g., egg cartons, other protective packaging)	Curbside
1.18	Gable-Top	Curbside
1.19	Aseptic Cartons	Curbside
1.20	Non-Metalized Gift Wrap	Curbside

	Packaging Type	Collection Method
	Clear PET Bottles, Jars and Jugs (including Transparent	
2.1	Green or Blue)	Curbside
	Clear PET Thermoform Containers (including	
2.3	Transparent Green or Blue)	Curbside
2.5	Natural HDPE Bottles, Jars and Jugs	Curbside
2.6	Colored HDPE Bottles, Jars and Jugs	Curbside
	Other Polyethylene (PE) Packaging (e.g., ice cream /	
2.7	butter containers) Except Pails and Lids and Squeezable	Curbside
	Polypropylene (PP) Packaging Except Pails and Lids	
2.8	(e.g., deli containers, cleaning products)	Curbside
2.16	Large HDPE & PP Pails & Lids (e.g., cat litter)	Curbside
4.1	Steel Aerosol Containers (empty)	Curbside or Drop off
4.2	Steel Containers	Curbside
4.3	Aluminum Aerosol Containers (empty)	Curbside or Drop off
4.4	Aluminum Non-Beverage Containers	Curbside
4.6	Aluminum - Beverage Containers	Curbside
5.1	Clear or Colored Glass	Curbside or Drop off

Proposed Additional Materials List

The **Additional Materials List** is a list of materials that may collected in different geographic areas through curbside services, drop-off centers or other means.

	Packaging Type	Collection Method		Packaging Type	Collection Method
1.8	Shredded Paper (bagged)	Curbside or Drop off or Other Means Curbside or Drop off or	3.1	LDPE/HDPE Film (e.g., monoPE recycle compatible	Curbside or Drop off or Other Means
1.14	Molded Pulp Food Serviceware (e.g., take-out "clamshells") Paper Cups, Coated and Uncoated Other Polycoated Packaging (e.g., some freezer and butter	Other Means Curbside or Drop off or Other Means	4.5	Other Aluminum Packaging (Foil and Foil Trays)	Curbside or Drop off or Other Means
1.16	boxes)	Other Means	4.7	Other Metal Deskering	Curbside or Drop off or
1.17	Paper Laminate (e.g., paper/aluminum wrappers, poly-lined deli wrap, and other plastic coated paper wrappers, including burger wraps)	Curbside or Drop off or Other Means	4.1		Other Wears
1.21	Paper "cans" (spiral-wound containers) with steel ends	Curbside or Drop off or Other Means			
2.2	Colored Opaque PET Bottles, Jars and Jugs	Other Means Curbside or Drop off or			
2.4	Colored opaque PET Thermoform Containers	Other Means Curbside or Drop off or			
2.12	PE Squeezable Tubes (e.g., toothpaste, lotions/sunscreens)	Other Means Curbside or Drop off			
2.13	LDPE Colored Nursery Containers (e.g., pots, trays, etc.)	or Other Means Curbside or Drop off or Other Means			

Program Exemptions

Covered materials exemptions include:

- Packaging materials for long-term storage/durable products,
- Unsafe or unsanitary paper products,
- Vital documents required to be printed,
- Bound books,
- Beverage containers subject to a container deposit,
- Industrial or manufacturing processes packaging materials,
- FDA drug, medical, supplement packaging materials,
- Animal biologics packaging materials,
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
- Paint stewardship packaging materials,
- Poison prevention act packaging materials,
- News and current event paper products, or
- Infant formula and medical food.

Packaging materials exemptions include:

- Transportation or distribution packaging for nonconsumers,
- Business to business packaging,
- Packaging materials not sold or distributed to covered entities, or
- Packaging materials used for products sold or distributed outside the state.

Producer exemptions include:

- A person with less than 5 million dollars in realized gross total revenue,
- A person who uses less than one ton of covered materials,
- The state or local government,
- A nonprofit organization,
- An agricultural employer with less than 5 million in realized gross total revenue,
- An individual business operating a retail food establishment located at a physical business location, or
- A builder, a construction company, or construction contractors.

Needs Assessment: Generation (Supply of Covered Materials)



Requirements of the Act

708 (1) **Producer requirements** EFFECTIVE JULY 1, 2025, A PRODUCER SHALL NOT SELL OR DISTRIBUTE ANY PRODUCTS THAT USE COVERED MATERIALS IN THE STATE UNLESS THE PRODUCER IS PARTICIPATING IN THE PROGRAM...A PRODUCER MUST REPORT THE DATA NECESSARY TO MEET ITS PLAN OBLIGATIONS

709 1(a) **Producer responsibility dues** BY A DATE DETERMINED BY THE ORGANIZATION THAT IS NO LATER THAN JANUARY 1, 2026, AND ANNUALLY THEREAFTER BY A DATE DETERMINED BY THE ORGANIZATION, A PRODUCER SHALL PAY PRODUCER RESPONSIBILITY DUES TO THE ORGANIZATION BASED ON THE FUNDING MECHANISM DESCRIBED IN THE PLAN PROPOSAL

714 **Restriction on fees** A PERSON SHALL NOT CHARGE ANY KIND OF POINT-OF-SALE OR POINT-OF-COLLECTION FEE TO CONSUMERS TO RECOUP ITS COSTS IN MEETING THE OBLIGATIONS OF OR COMPLYING WITH THIS PART 7.

Needs Assessment vs. Program Plan

- The data collected in the Needs Assessment informed the development of the three proposed scenarios.
- The Program Plan is modeled off the approved scenario, while maintaining the ability to make adjustments based on new information gathered and to set additional targets for postconsumer recycled content.

Element	Needs Assessment	Program Plan
Education	Establish the education needs in the state (25-17-705 3(a)(XII)).	Describe how education and outreach program will be implemented (25-17-705 4(y))
Materials	A proposed list of covered materials for inclusion in the minimum recyclable list and additional materials (25-17-705 3(a)(VIII)).	Include the minimum recyclable list (25-17-705 4(o)). Shall update the minimum recyclable list and submit updates for inclusion in annual report.
Targets	Develop at least three recycling scenarios, including recycling rates and collection rates the state could meet by Jan. 1, 2030 and Jan. 1, 2035 including capital costs and operational costs(25-17-705 3(a)(XIII)).	Set targets for the minimum collection rates, minimum recycling rates and minimum postconsumer recycled content (25-17-705 4(p))
Reimbursement	Explain demographic and other factors to be considered in the development of reimbursement rates for service providers (25-17-705 3(a)(III)).	Create a a schedule of reimbursement rates for service providers that elect to participate (25-17-705 4(I))

Cost comparison: EPR packaging and paper programs

Cost per ton

Colorado: \$394

Alberta: \$426*

British Columbia: \$539*

*converted from metric tonnes to tons and CAD to USD https://recyclebc.ca/wp-content/uploads/2023/06/RecycleBC_AR2022_FINAL.pdf https://recyclebc.ca/wp-content/uploads/2023/06/RecycleBC_AR2022_FINAL.pdf

1/30/24 first draft: cost estimates per scenario

		Baseline (2022) Lower	Baseline (2022) Upper	2030 Lower	2030 Upper	2035 Lower	2035 Upper
Low	Total Annualized Cost (\$ millions)	80	140	130	200	160	250
	Cost Per Household (\$)	60	90	60	90	70	110
	Cost Per Ton Recycled (\$)	260	430	280	450	240	380
Medium	Total Annualized Cost (\$ millions)	80	140	130	210	160	260
	Cost Per Household (\$)	60	90	60	90	70	120
	Cost Per Ton Recycled (\$)	260	430	260	430	230	370
High	Total Annualized Cost (\$ millions)	80	<mark>1</mark> 40	150	240	180	290
	Cost Per Household (\$)	60	90	70	110	80	130
	Cost Per Ton Recycled (\$)	260	430	270	430	240	390

1/30/24 first draft: outcomes per scenario

		2022 (Baseline)	2030	2035
Low	Recycling Rate (%)	22% - 28%	32% - 38%	47% - 53%
	Recycling Tonnage (k tons)	~310	~450	~660
Medium	Recycling Rate (%)	22% - 28%	34% - 40%	51% - 57%
	Recycling Tonnage (k tons)	~310	~480	~710
High	Recycling Rate (%)	22% - 28%	39% - 45%	54% - 60%
	Recycling Tonnage (k tons)	~310	~550	~750

	Minimum (\$)	95% Confidence Interval (Lower)	Mean (\$)	95% Confidence Interval (Upper)	Maximum (\$)
Front Range	5	5	12	21	22
Mountains	22	22	39	65	69
Westerns Slope	10	10	17	31	34
Eastern Plains	7	7	12	24	25

Table 8: Monthly Household Cost of Curbside Recycling When Priced Individually

Table 9: Monthly Household Cost of Curbside Recycling When Bundled with Waste

	Minimum (\$)	95% Confidence Interval (Lower)	Mean (\$)	95% Confidence Interval (Upper)	Maximum (\$)
Front Range	12	13	21	34	35
Mountains	28	30	57	79	83
Westerns Slope	17	17	26	41	42
Eastern Plains	n/a	n/a	n/a	n/a	n/a