



December 17<sup>th</sup>, 2024

# Maryland EPR Scenario Workshop

# Workshop Objective and Agenda

**Objective:** The consultant team is contracted to evaluate one scenario for future EPR recycling performance and cost. The objective of this workshop is to design that scenario.

Agenda Item	Timing / Duration	Focus of discussion
<b>Update and Workshop Overview</b>	9:00 – 9:10 AM ET (10 min)	<ul style="list-style-type: none"><li>• Review objective of workshop</li><li>• Update on project status</li></ul>
<b>Part 1: EPR Potential at Improving Recycling Systems</b>	9:10 – 9:25 AM ET (15 min)	<ul style="list-style-type: none"><li>• Establish how Maryland currently performs against U.S. states and jurisdictions with EPR</li><li>• Overview the key policy considerations of EPR and the potential benefits</li></ul>
<b>Part 2: Baseline Results</b>	9:25 – 9:40 AM ET (15 min)	<ul style="list-style-type: none"><li>• Present results of Maryland baseline recycling performance</li></ul>
<b>Part 3: Operational and Scenario Considerations</b>	9:40 – 10:50 AM ET (70 min)	<ul style="list-style-type: none"><li>• Overview how EPR scenario is analyzed</li><li>• Review key factors included in analysis and potential option</li></ul>
<b>Any Other Business</b>	10:50 – 11:00 AM ET (10 min)	<ul style="list-style-type: none"><li>• Any other business</li></ul>

# Schedule Update

We are here



# Recommended Workshop Flow

## Part 1 and Part 2

Presentation only

- Hold questions to the end of workshop, please

## Part 3

- Review scenario factors for modelling future state
- For each factor we will present a potential option and other options considered
- We will take feedback through discussion



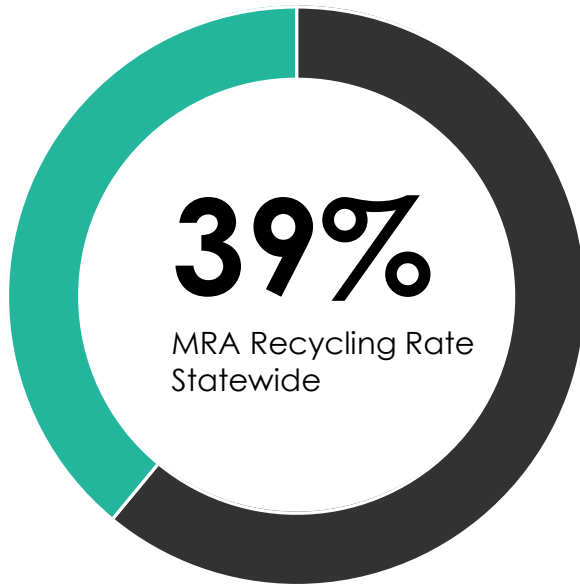
**EPR Potential**



# Maryland's Current MRA Recycling Rate is 39%

Maryland has a good recycling system compared to other states in the U.S. but there is room for improvement when compared to jurisdictions with EPR.

## MRA Rate



## Ranking of States by Packaging Recycling Rate

	Rank w/o Fiber	Rank w/ Fiber*
1	Maine	Maine
2	Vermont	Oregon
3	Massachusetts	Connecticut
4	Iowa	New Jersey
5	Oregon	Delaware
6	New York	Iowa
7	California	<b>Maryland</b>
8	Michigan	Vermont
9	New Jersey	Minnesota
10	Connecticut	California
11	Minnesota	Rhode Island
12	<b>Maryland</b>	North Carolina
13	Wisconsin	New York

Based on Eunomia's 50 States of Recycling Report

\* Does not include mixed paper

## Packaging Recycling Rates of Jurisdictions with EPR\*\*

Jurisdiction	Recycling Rate
British Columbia	79.6% (2023)
France	65.5% (2022)
Quebec	64% (2019)
Colorado***	55% (2035)
Belgium	89.8% (2021)

\*\*Covered materials and calculation method vary across regions  
 \*\*\*Estimated recycling rate in 2035 based on needs assessment

# What Does Maryland Want EPR to Achieve?



Increase recycling rates



Decrease contamination



Increase recycling capacity



Increase safety for workers in the recycling industry



Increase access to recycling equitably



Increase opportunity for WMBE individuals/companies



Address environmental health and human impact of packaging



Promote responsible end markets

# There are 12 key considerations for EPR policy

These are more relevant to legislation development, while the scenario modeling is related to more detailed operational considerations.



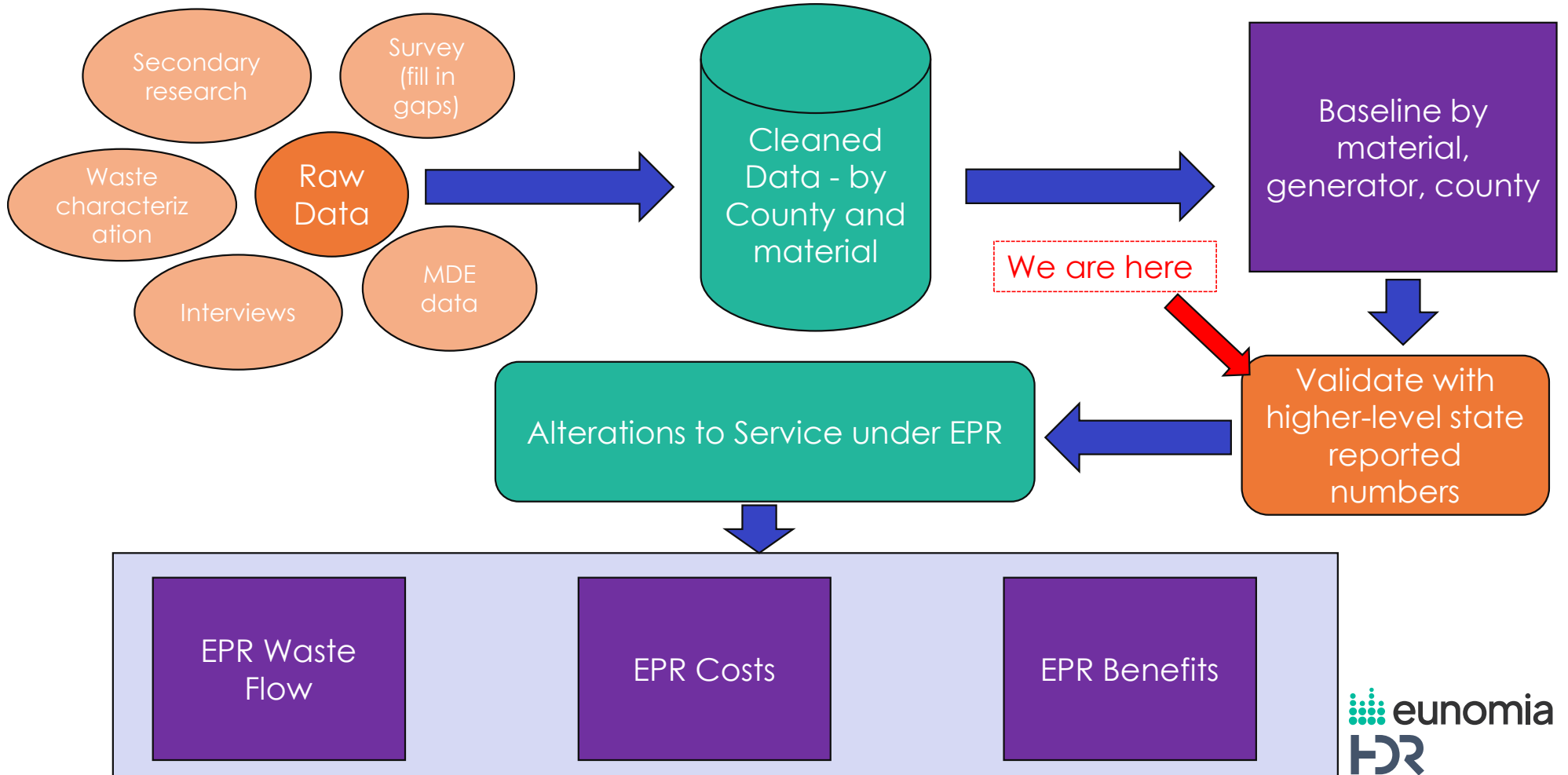




# Baseline Results



# Model Process



# Materials Evaluated as Part of Analysis

Scope includes packaging and paper items, this refers to:

1. Mixed paper products
2. Polycoated paper products
3. OCC/Cardboard
4. Rigid plastic packaging
5. Flexible plastic packaging
6. Metal packaging (e.g., cans, foil)
7. Glass bottles and jars

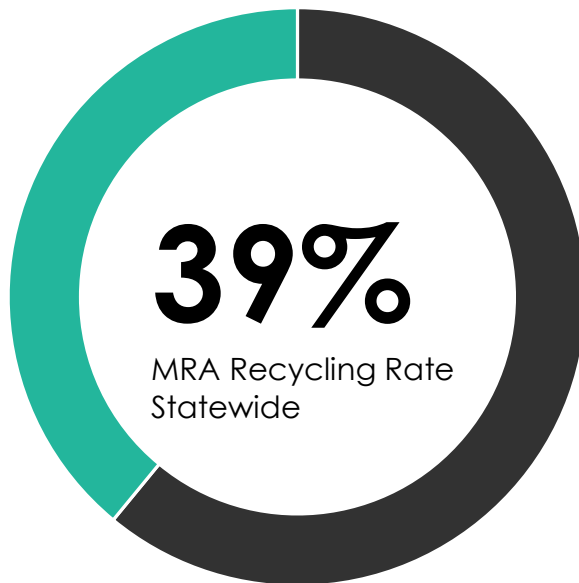
Does *not* include:

1. Food and yard waste organics
2. C&D
3. HHW
4. Other non-municipal waste



# Maryland's Recycling Rate for Packaging is 32-34%\*

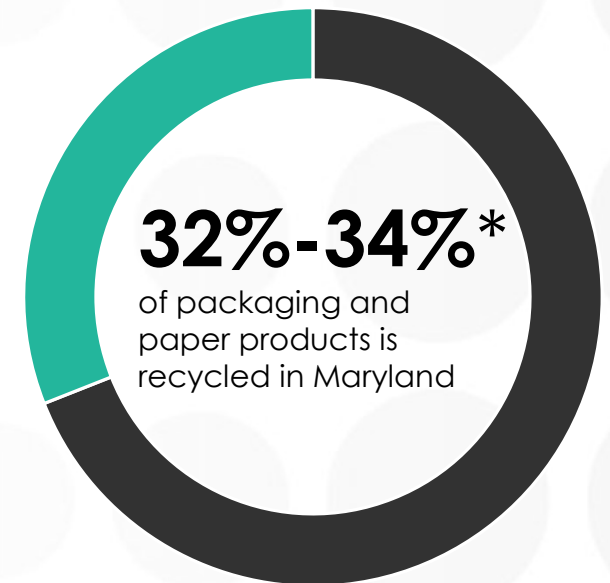
MRA Rate



Difference between MRA and Needs Assessment

Needs assessment is packaging and paper products (PPP) only. MRA is ~25% PPP.

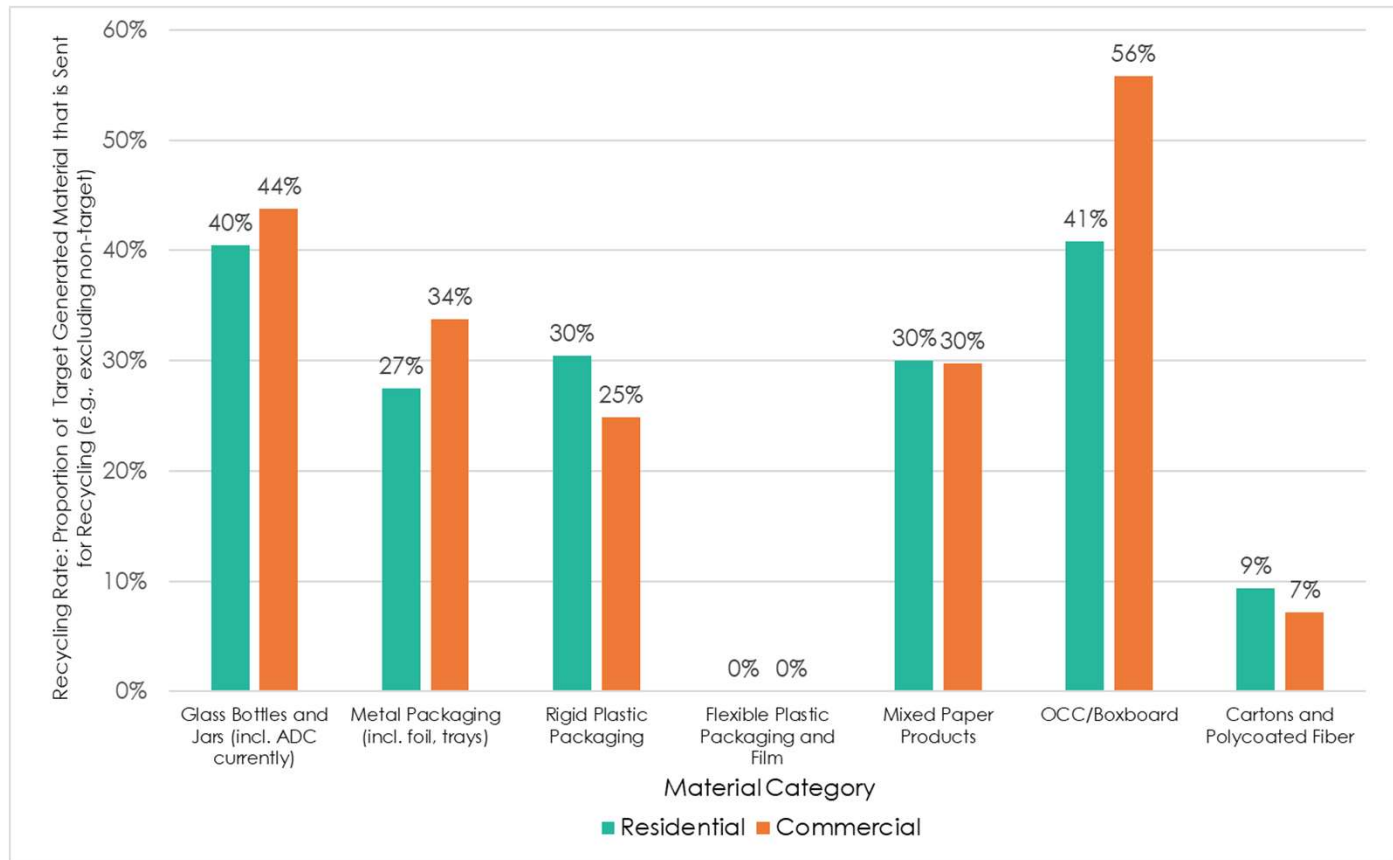
Needs Assessment Baseline Findings



\*Preliminary and subject to change, range reflects classification of certain material categories (e.g., "Other Composite Plastic")

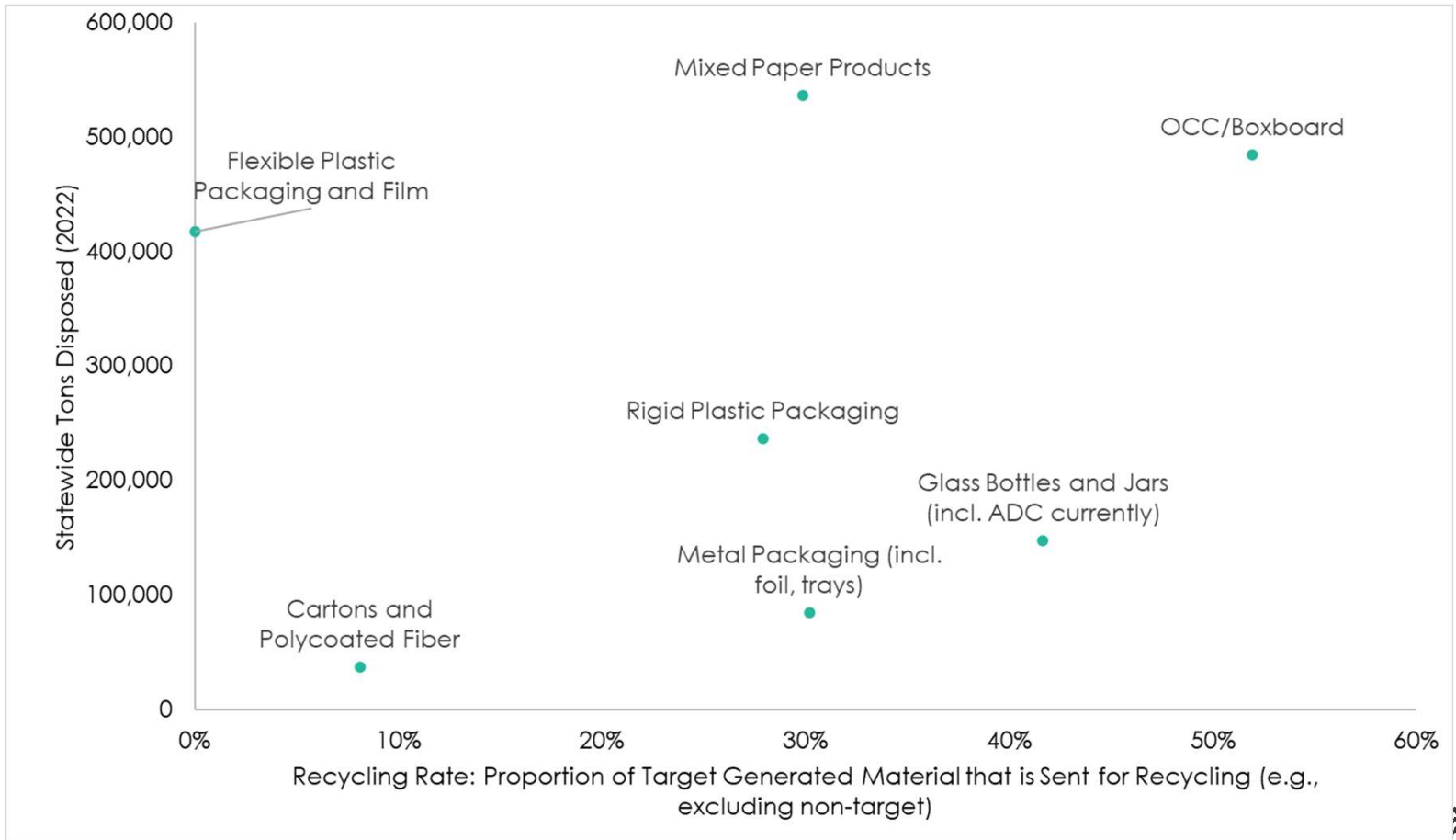
[Maryland Solid Waste Management and Diversion Report.pdf](#)

# Preliminary Recycling Rates by Material – High Level Categories – Rates Frequently Between 30% and 40%



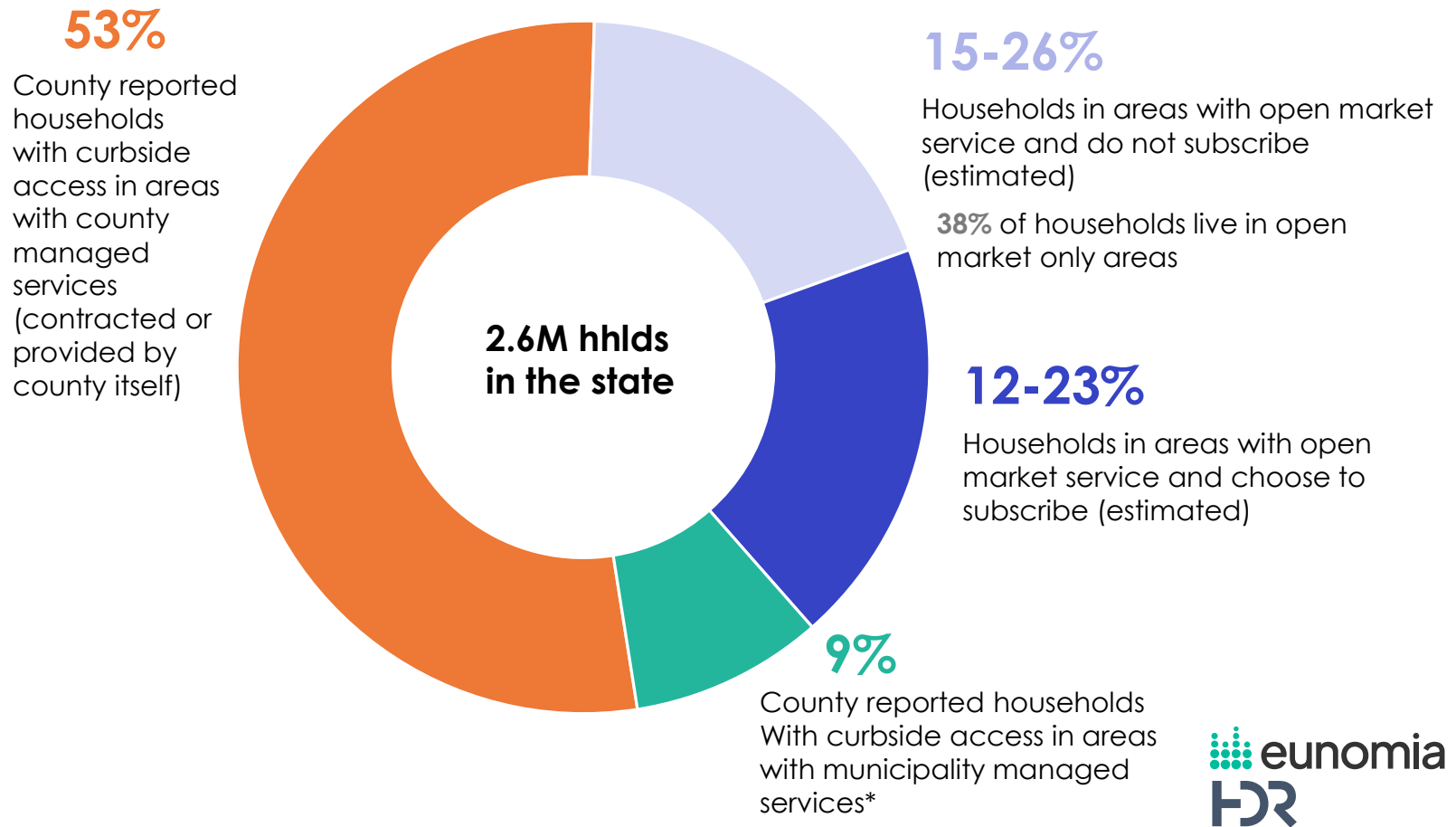
\*Source: MDE Data, County Surveys, MSW Consultant Statewide Waste Characterization, Eunomia Modelling

# All Materials Have Additional Tons to Capture



# Preliminary Residential Curbside Active Service Rates

Initial estimate of ~80% active service rate to curbside services across the state





# Operational Considerations

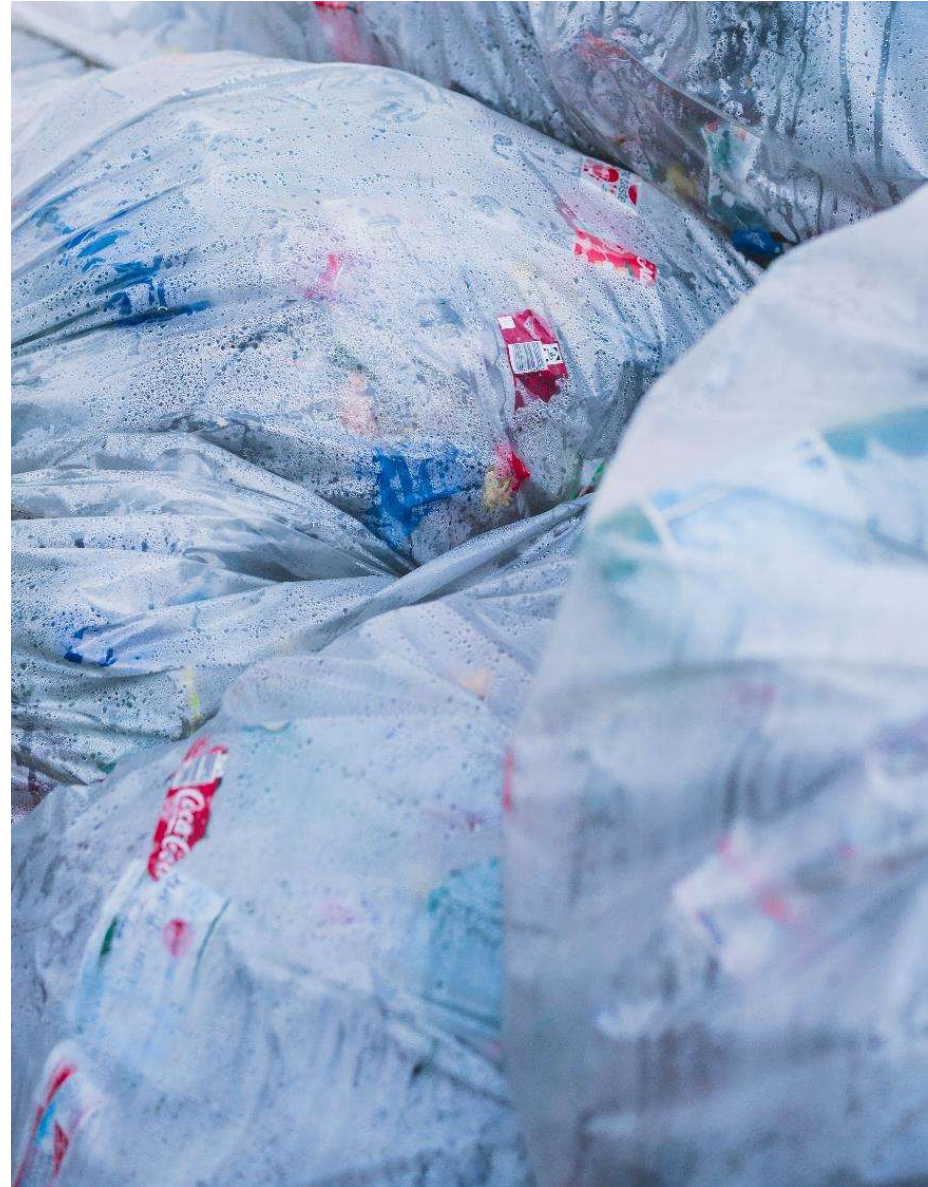




## Modeling Objective

- We will estimate the performance, cost, and benefits of a future recycling system in Maryland under EPR.
- We are contracted to evaluate one future EPR scenario. The detailed approach to model will be determined partially based on this discussion.
- There are several operational considerations which impact the system's performance and cost.
- Today we will review the operational factors we can evaluate.
- For each factor we will present a potential option and have the advisory committee input. We won't be able to discuss all the detailed modeling assumptions today.

Baseline and future scenario modelling will help provide data to support effective decision making. These are estimates based on available information. Preliminary results are subject to change.



# Operational Considerations

There are eight operational factors related to modeling the performance and cost of a future EPR system. For each factor we considered several options and will present the potential option.

Factor/Initiative	Sector	Description
<b>Frequency</b>	Residential	How often material is collected from residential households
<b>Access</b>	Residential	What residential properties have access to curbside recycling
<b>Access</b>	Commercial	What commercial properties have access to curbside recycling
<b>Curbside Material Collection Method</b>	Residential and commercial	How is material collected (single stream, dual stream etc)
<b>Accepted Materials</b>	Residential and commercial	What covered materials are accepted in recycling programs statewide
<b>Compliance</b>	Residential and commercial	Level of investment to ensure waste is properly sorted between recycling and non-recycling
<b>Education</b>	Residential and commercial	Level of education and awareness initiatives to decrease contamination and raise participation
<b>Technology Investment</b>	Residential and commercial	Level of investment in MRF/Composting technology and infrastructure

# Operational Consideration: Frequency

**Description:** How often material is collected from residential households.

**Impact:** Frequency has a moderate impact on the performance and cost of the system. Moving from every other week to weekly is likely to increase cost more than increase capture.

**Baseline:** Most common collection is weekly with some jurisdictions collecting every other week.

**Potential Option:** Current service frequency remains the same. Jurisdictions with new service under EPR get every other week collection.

**Rationale:** Keeping current service frequency the same ensures service level does not reduce under EPR. New service being every other week is expected to have the greatest performance for the cost and likely to be most realistic for more rural areas which will get new service.

**Other Options Considered:**

- Every other week for all
- Weekly for all
- Frequency for recycling being the same as garbage



# Operational Consideration: Residential Curbside Recycling Access

**Description:** Which residential properties have access to curbside recycling.

**Impact:** This has some of the greatest potential for impact as the more households with access the greater the expected recycling rate is. Cost is likely to increase in proportion to the amount of new households with access.

**Baseline:** Current curbside access for residential recycling is optional in most jurisdictions, with a few reporting that curbside recycling is not optional. ~80% of households have active service.

**Potential Option:** Expand access so all households with curbside garbage collection have curbside recycling collection (equivalency).

**Rationale:** This option helps create an equitable recycling system that is equivalent to garbage collection. Universal curbside collection was not selected as it may be more challenging and costly to service rural areas with drop off garbage.

**Other Options Considered:**

- Universal collection for single family only
- Universal collection for single family and multifamily
- No expanded access



# Operational Consideration: Commercial Access

**Description:** Which commercial properties have access to curbside recycling.

**Impact:** This is likely to have moderate impact on performance and cost. There is currently more generation of covered materials in the commercial sector.

**Baseline:** Hauler survey confirmed jurisdictions with commercial trash are also provided commercial recycling. Six counties surveyed mentioned that they have limited commercial curbside collection. Large offices must recycle.

**Potential Option:** Recycling service is offered to all commercial entities with increased participation compared to baseline.

**Rationale:** This option will not mandate all commercial entities to participate but will help show that by providing the service EPR will expand participation.

**Other Options Considered:**

- Targeted collection at likely high generators of packaging
- Universal commercial collection



# Operational Consideration: Material Collection

**Description:** How is curbside material collected (single stream, dual stream etc.)

**Impact:** This is not likely to have significant impact on top line recycling rate or cost but may have larger impact on some specific materials targeted.

**Baseline:** Most common is single stream, with only 3 counties reporting dual stream.

**Potential Option:** Collection method for current service remains the same. New service is provided through single stream. Does not preclude a county from deciding to do dual stream.

**Rationale:** This will ensure that residents will keep the same level of service they may be accustomed to while aligning new service with the most common collection methods.

**Other Options Considered:**

- Single stream for all
- Dual stream for all



## Operational Consideration: Compliance

**Description:** Investment is made at drop off facilities and for curbside recycling to ensure waste is properly sorted between recycling and non-recycling.

**Impact:** This compliance increases the amount of material that is properly placed in recycling, thereby increasing capture and reducing contamination.

**Baseline:** Compliance in some counties is implemented through mandatory recycling ordinances, volume-based recycling requirements, and limited office recycling laws. Some counties have between 0.5-2 FTE in place to support compliance efforts for multifamily recycling, but many have none.

**Potential Option:** Investment in compliance is supported by EPR above and beyond existing programs.

**Rationale:** A moderate investment can increase capture and reduce contamination, while providing flexibility for how this enforcement is implemented.

**Other Options Considered:**

- No increase in compliance and enforcement
- High investment in compliance and enforcement



# Operational Consideration: Education

**Description:** Level of education and awareness initiatives across the state

**Impact:** Investment in education leads in increased participation in recycling and lowers contamination

**Baseline:** Many jurisdictions currently run education and outreach programs. Program focus areas include accepted materials, service provision, environmental benefits, recycling education, waste reduction, reuse activities, source reduction, and contamination reduction. ~40% of jurisdictions provide recycling education in multiple languages. ~33% of jurisdictions reported annual household spending on education/outreach ranging from \$0.50 to \$2 per household.

**Potential Option:** Investment in education at best practice level (~\$10/hh).

**Rationale:** Determining the exact benefits curve per dollar of investment in education is challenging based on available data. Setting a best practice level is most appropriate for modelling purposes. We will continue to work to define what best practice is in monetary terms.

**Other Options Considered:**

- Moderate investment (\$5/hh)





# Operational Consideration: Technology Investment

**Description:** Level of investment in MRF/Composting technology and infrastructure

**Impact:** Increased technology investment can support better sorting at the MRF and increase the yield of collected materials.

**Baseline:** Of MRFs that responded to surveys some MRFs have access to ballistic separators, optical sorters, and air classifiers but not technology is universal across all MRFs. Recycling processing infrastructure includes state of the art single-stream facilities, dual-stream facilities, mini-MRFs, and push & bale facilities. Composting infrastructure varies depending on Tier I and Tier II classifications.

**Potential Option:** Targeted investment at MRFs to manage certain key materials where there is capacity for adding/expanding equipment. Support existing Tier II facilities to accept compostable plastics/packaging.

**Rationale:** There may be size and operational constraints for full retrofits for best in class technology at all MRFs and composting facilities. A more targeted modelling will help show a more feasible investment approach.

**Other Options Considered:**

- No investment
- Best in class technology upgrades



# Operational Consideration: Accepted Materials

**Description:** What materials are accepted in curbside programs statewide.

**Impact:** This increases the capture rate of households, increasing recycling and the relative costs of managing that material.

**Baseline:** Most MRFs accept the following materials: OCC, other paper, metals, containers, glass, and plastics with some other materials accepted depending on the facility equipment, capacity, and contracts with jurisdictions.

**Potential Option:** Materials based on statewide waste characterization to develop a uniform materials list. Mono material flexibles (e.g., plastic film, etc.) would be recovered via drop-off.

**Rationale:** This option will help simplify and harmonize recycling programs across the state, while allowing for additional materials to be added as the state builds capacity to accept them over time through a phased approach.

**Other Options Considered:**

- Limited materials list only





**Thank You**



# Appendix

# Benefits and Impacts of EPR in Other Jurisdictions



## Improving the 3Rs



## GHG emissions reduction



## Economic and Social Impacts

	<b>EPR can improve reduction, reuse, and recycling.</b>	<b>Source reduction, diverting waste from landfill, and improving reuse and recycling, EPR can contribute to reduction of GHG emissions</b>	<b>EPR can benefit communities by creating jobs and improving access to recycling.</b>
France	<ul style="list-style-type: none"> <li>65.5% recycling rate for packaging (2022)</li> <li>2.2% reuse rate for packaging (2023)</li> </ul>	<ul style="list-style-type: none"> <li>Not reported officially. Estimates by third parties of reduction in GHG emissions range between 2.1 million tonnes to 39.5 million tonnes based on the methodology used, the scope of materials included, and the inclusion of waste-to-energy.</li> </ul>	<ul style="list-style-type: none"> <li>Not reported officially. France has had EPR for consumer packaging for 30+ years with 98% access to curbside collection for recycling.</li> </ul>
British Columbia	<ul style="list-style-type: none"> <li>43% recovery rate for plastics (56% for rigid, 20% for flexibles)</li> <li>Achieved a 98% recovery rate for glass; 70% for metal; 88% for paper</li> </ul>	<ul style="list-style-type: none"> <li>In 2023, an estimated 23,804 tonnes of CO2 equivalent in GHG emissions was avoided.</li> </ul>	<ul style="list-style-type: none"> <li>99.4% of BC residents have access to recycling, with 75% through curbside and 15% through depots. Specific accessibility requirements for remote and First nation communities.</li> </ul>
Québec	<ul style="list-style-type: none"> <li>Collection targets are material specific and range between 50% to 80% by 2027.</li> <li>Material-specific recycling targets range from 40% to 75% recycling by 2027 and must eventually achieve 75% to 85% recycling rates.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of EPR is forecasted to divert 53,500 tonnes of material from landfills, avoiding 70,600 tonnes of CO2 equivalent in GHG emissions by 2030.</li> </ul>	<ul style="list-style-type: none"> <li>Access to curbside and depot location expected to increase under modernized EPR.</li> <li>Implementation of EPR is expected to create 100 to 500 jobs based on a Quebec study that every 1,000 tonnes of waste diverted creates 3 jobs.</li> </ul>

## Cost of EPR ranges in Other Jurisdictions

The cost of EPR varies by jurisdiction. Below are examples of cost per tonne, calculated by dividing the total system cost reported by the amount of material (in tons for Colorado and metric tonnes for the other jurisdictions).

The total system cost is calculated by the PRO based on regulatory requirements. For Colorado, the total system cost was calculated by Eunomia and HDR in the Needs Assessment.

Quebec

\$548 per tonne

France

\$256 per tonne

Colorado (estimated)

\$350 per ton

British Columbia

\$507 per tonne



# Key Policy Considerations

What policy design options are there and what impact do they have



**Covered materials and products:** Does the program include all material types? Are reusable packaging exempt from producer fees? Does it cover primary, secondary, and tertiary packaging?



**Entities Covered:** Does the program only cover materials and products destined for residential consumption, or does it also extend to institutional, commercial, and industrial entities?



**Producer Responsibility Organization:** does the program allow one PRO or multiple PROs? If it begins with a single PRO, can additional PROs be introduced after a set number of years? Can producers comply with the requirements of EPR individually? What are the requirements for a PRO to be approved? What is the PRO responsible for on behalf of producers?

# Key Policy Considerations

What policy design options are there and what impact do they have



**Collection:** Does the program specify required collection frequency or ensure a certain level of access to collection services? Must recycling collection be as accessible as trash collection? Are collectors/haulers required to accept all covered material deemed recyclable to qualify for reimbursement under EPR? Does the program incorporate depot options?



**Recycling, processing, and end markets:** How is the processing of materials tracked? How are investments in recycling infrastructure allocated? Is there an incentive to support local end markets?



**Data Reporting:** Producers report the number of covered products placed on the market, specifying material type and weight. What level of granularity is required from producers? Is this determined by law, or can PROs exercise flexibility in setting reporting requirements?



# Key Policy Considerations



**De Minimis Exemptions and Simplified Reporting for Low-Volume Producers:** How does the regulation address low-volume producers? Are small producers fully exempt from the program? Is there a minimum threshold based on tonnage or number of units of packaging placed on the market? Does the threshold also account for producer revenue? Are reporting requirements simplified for small producers? Can they opt to pay a flat fee?



**Fees and Cost coverage:** What do the fees cover? Do they include collection, transportation, sorting, and recycling of covered materials, infrastructure development, education campaigns, litter cleanup efforts, and support for research and development? How granular are the base fees for each material? For instance, do they vary by resin type, color, opacity, or flexibility of plastic packaging? Who is responsible for developing the methodology to determine producer fees?



**Eco-modulation:** What factors form the basis of eco-modulation? How prescriptive is it? Does it mandate specific bonuses for practices like using recycled content, switching to reusable packaging, and source reduction (e.g., lightweighting, concentrating, bulk packaging, eliminating components)? Or is it less prescriptive, requiring eco-modulation to generally incentivize reuse and recycling while discouraging costly or non-recyclable designs? Who is responsible for designing eco-modulation? Is it periodically revised based on producer reporting data?

# Key Policy Considerations



**Targets:** Are targets established through legislation or by the PRO? What types of targets are included—collection, recycling, reuse, and source reduction? What serves as the baseline for setting the targets? Are the targets staggered over time? Is the PRO responsible for achieving these targets in absolute terms, or must each individual producer meet them? How are the targets enforced?



**Education and Communication:** Do fees cover the cost of education and communication campaigns aimed at improving separation of recyclable and compostable materials? Does the program require covered products to have a label or logo? Is the PRO required to report on education activities and communication campaigns?



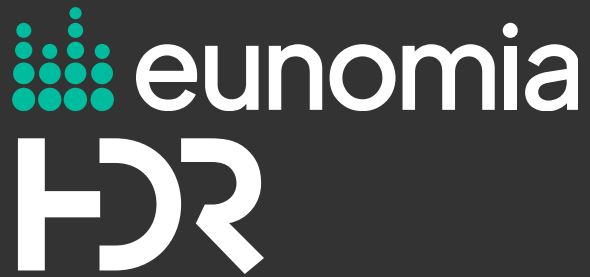
**Governance and Enforcement:** What are the penalties for non-compliance? Which government body oversees implementation? Are audits of data required? Are certain aspects of the program set by government (target-setting, eco-modulation criteria)?

# Policy Design

When designing EPR systems, stakeholders should evaluate the scope and level of prescriptiveness for each key aspect. The table below outlines common options to consider, but there may be additional options not included in this table.

Key Consideration	Options for designing EPR programs				
Covered Materials and Products	Residential / consumer packaging.	Primary, secondary, and tertiary packaging	Includes e-commerce.	Excludes certain products (medicine, baby formula etc)	
Entities Covered	Residential Single Family	All Residential	All Residential and Some Commercial	All residential and Institutional, Commercial, and Industrial (IC&I)	Includes public spaces and streetscapes.
PRO	Single PRO	Single PRO for the first few years of implementation	Multiple PROs		
Collection	Reimbursements to collectors (municipal, contractors)	Accessibility requirements	Scope of materials collected curbside / depots		
Recycling, Processing, End Markets	Defining recycling, including whether pyrolysis, gasification, or waste to energy is included	Investments in infrastructure	Requiring local / domestic processing and recycling capacity		

Key Consideration	Options for designing EPR programs			
Data reporting	Set reporting categories	Set granularity of reporting (SKU, weight, number of components)		
De Minimis Exemptions and Simplified Reporting	No small producer exemption and no simplified reporting	Set a minimum threshold, such as tonnage placed on market or total annual revenue.	Exempt small producers from all requirements	Provide option for flat fees and simplified declarations for small producers
Fees	Fees strictly cover the cost of waste management	Includes investments in infrastructure, education, end markets	Includes fees for litter clean ups, research and development	Differentiates cost to incentivize design for recycling (see eco-modulation)
Eco-Modulation	No eco-modulation	Eco-modulation based on set criteria (use of recycled content, reuse)	Eco-modulation designed by PRO based on data reporting from producers	
Targets	Party responsible for setting targets (PRO or legislator)	Type of targets: collection, recycling, source reduction, reuse.	Setting a baseline year and allowing enough time between implementation and first target date	Incremental targets
Education & Communication	Require labelling on packaging covered by program	Require fees to cover education and communication campaigns	Require PRO to report on efforts to educate covered entities	
Governance and Enforcement	Producer-led system with government oversight	Certain program aspects set by government (targets, eco-modulation)		



## About Eunomia

Eunomia is an independent sustainability consultancy driven by a genuine passion to make a positive change to the clients we work with and the communities they operate in. Founded in 2001, we have been pioneers in the sector - early advocates for helping NGOs as well as leading public and private sector organisations in the UK and overseas to adapt their approach and adopt more sustainable processes.

Our consultants are experts in the field, deeply immersed in the subject with the technical knowledge and skill to offer clients innovative, clear and practical recommendations. We are committed to finding solutions to better protect the planet, while supporting the wider aims and needs of our clients.

Each client is treated as an individual, with consultants taking the time to understand their objectives and how best we can support them. This personal service ensures a strong relationship is forged, based on honest and regular communication. It also ensures if these objectives change, there is the flexibility to adapt.

As an established leading independent consultancy, clients can have complete confidence that consultants will offer evidence-led solutions based on robust, impartial thinking that offer both pragmatic and positive outcomes.