



**PRODUCT
STEWARDSHIP
INSTITUTE**

TECHNICAL PROPOSAL: WV NATIONAL EPR STUDY

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REAP – WV Extended Producer Responsibility
Study

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1. Project Goals & Mandatory Requirements (per RFP section 4.2)

1.1 Context

In the face of an increasingly complex, costly, and difficult-to-manage municipal waste stream, there is a national movement among local solid and hazardous waste management departments and state environmental agencies toward a policy approach known as extended producer responsibility (EPR). EPR systems hold producers – such as brand owners and manufacturers – accountable for the entire lifecycle impacts of their products and packaging. This includes post-consumer recovery, recycling, or other safe management of materials. This system integrates recovery and recycling costs into production costs and forms the foundation of the emerging circular economy – a model where resources are recovered at scale and reintegrated into manufacturing. In a global economy where competition for valuable metals, rare earth minerals, and other resources is intensifying, conservation and reclamation of materials in batteries, electronics, and other products is more important than ever for U.S. economic competitiveness and job creation.

EPR policies and programs have been used in various jurisdictions around the world since the late 1990's for packaging, electronics, batteries, and other products, and were first used in the United States for certain types of batteries in the 1990's. West Virginia first implemented EPR for electronics in 2008, around the same time as 24 other states. These electronics EPR programs developed from a national dialogue hosted by the U.S. Environmental Protection Agency in response to a national movement for electronics EPR led by the Product Stewardship Institute (PSI) and its state and local government members in more than 20 states. The West Virginia Department of Environmental Protection (WVDEP) joined PSI as an affiliate member in 2008 because of the national electronics dialogue process and their interest in EPR for electronic devices.

PSI is a nonprofit policy expert that translates evidence-based research into practical EPR solutions, advancing policy innovations that enhance real-world program development. Founded in 2000 by CEO Scott Cassel, PSI pioneered EPR in the United States by convening diverse stakeholders in facilitated dialogues to jointly develop consensus-based policies and programs. Drawing on global best practices and strong international partnerships, PSI's research, stakeholder engagement, pilot programs, policy models, and technical guidance have shaped 146 EPR laws across 34 states and the District of Columbia. These laws span 21 product categories including batteries, electronics, paint, mattresses, tires, and mercury-containing lights. PSI will be joined in this project by Eunomia Environmental Research and Consulting (Eunomia), a multi-national consulting firm established in 2001 with expertise in EPR, recycling, and economic and environmental cost-benefit analysis. PSI and Eunomia (the project team) have successfully partnered on multiple state-led projects to deliver EPR evaluations and policy recommendations. Our combined experience and complementary strengths position us to effectively support the WVDEP through this national EPR study.

1.2 Goals and Objectives (per RFP section 4.2.1)

The goal of this nationwide EPR study is to equip WVDEP with information, data, best practices, and an evaluative framework to strengthen its existing covered electronic devices (CED) program and assess EPR expansion to batteries, paint, mattresses, tires, and fluorescent lights – helping to inform sound policy decisions for each.

Specific objectives of the EPR study for the six target products include the following:

- 1. Identify Best Practices by Evaluating Existing EPR Programs:** The project team will analyze existing U.S. EPR policies and programs for the six target products; identify best practices in U.S. and global policy and program operations that correlate with success; develop case studies illustrating best practices and public adoption; and identify options for West Virginia.
- 2. Analyze and Provide Recommendations for West Virginia's CED EPR Program:** As part of the evaluation of existing EPR programs, we will analyze the performance of the CED EPR program, identify program strengths and areas for improvement, and recommend short- and long-term options for strengthening the CED program based on global best practices that are tailored to the West Virginia context.
- 3. Conduct a Cost/Benefit Analysis of EPR for West Virginia:** The project team will model and analyze the potential financial, socio-economic, and environmental costs and benefits of EPR programs for the target products in West Virginia to understand which policies and program options are best suited to the unique geographic, demographic, and economic conditions of the state. This work includes seeking baseline data through an electronic survey and on-the-ground intelligence through interviews with key stakeholders.
- 4. Develop an Interim Report with Draft Recommendations, Framework, and Roadmap:** We will compile EPR research and modeling results into an Interim Report that includes a draft evaluative framework, draft recommendations for EPR in West Virginia, and a preliminary roadmap for statewide implementation. The Interim Report will serve as a background briefing document for two PSI-facilitated multi-stakeholder meetings.
- 5. Facilitate Input from Key West Virginia Stakeholders:** We will seek input from key West Virginia stakeholders at particular intervals throughout the project, including through a multi-stakeholder Advisory Committee, a data collection survey, and two larger multi-stakeholder meetings. Stakeholders will provide input on EPR impact modeling factors; survey questions; the CED program evaluation; draft recommendations; and the draft EPR implementation roadmap. Stakeholder feedback will be systematically integrated into modeling assumptions and recommendations.
- 6. Provide Final Recommendations and a Roadmap for EPR in West Virginia:** Based on the research, modeling, and input gathered through two stakeholder meetings, we will refine the recommendations and roadmap and edit the Interim Report into a Final Report. The Final Report will include actionable recommendations for EPR in West

Virginia and a comprehensive EPR implementation roadmap that includes prioritization of product waste for EPR, a process for developing EPR policies with multi-stakeholder input, coalition building, and implementation that will maximize public adoption and acceptance of new EPR programs.

1.3 Approach and Mandatory Project Requirements (per RFP section 4.2.2)

PSI and Eunomia will approach this EPR study efficiently and collaboratively. We will draw on our extensive body of existing EPR research, policy development, law implementation, and evaluation to quickly compile and analyze data on existing EPR policies and programs to identify best practices. Based on our familiarity with West Virginia's solid waste management system, we will analyze the costs and beneficial impacts that EPR could have on the state and identify the most appropriate EPR policy models for West Virginia to consider. We will work closely with DEP and other key stakeholders to ensure the research, analysis, recommendations, and implementation roadmap reflect West Virginia's unique geographic, demographic, and economic context. Stakeholders will have ample opportunity to provide input at key milestones.

Collaborative Approach: PSI will work in close partnership with WVDEP throughout the project, engaging in regular communication and seeking input at key milestones to ensure alignment with state priorities. An Advisory Committee—comprised of key stakeholders identified by WVDEP, including local governments; producers; waste and recycling entities; community organizations; and retailers—will provide strategic guidance during Phase One. PSI and Eunomia will consult this group to refine research parameters, address data gaps, and strengthen stakeholder engagement. The Advisory Committee and additional stakeholders they recommend will also participate in two facilitated multi-stakeholder meetings to review the research findings and case studies and shape the EPR framework and implementation roadmap. This inclusive, phased engagement strategy – a hallmark of PSI's policy approach – will ensure the study reflects West Virginia's needs and builds broad support for future EPR initiatives.

Leverage Existing Research: Both PSI and Eunomia bring extensive experience analyzing EPR programs across the U.S. and international jurisdictions. PSI has deep expertise in all six target product categories, having developed and refined EPR policy models now used in 34 states and the District of Columbia. Notably, in 2001, PSI was asked by over 20 state agencies to support them in researching and engaging with electronics manufacturers and recyclers to seek a model policy through a US Environmental Protection Agency dialogue. This work led to electronics EPR and recycling laws being enacted in 25 states, and PSI has continued its research and policy recommendations on electronics to supply numerous policy changes.

In addition, PSI initiated and mediated a national dialogue, conducted from 2003 to 2007, with more than 300 stakeholders that led to the paint EPR model adopted in 12 states and the District of Columbia. PSI also collaborated with Connecticut state and local governments, recyclers, and waste companies from 2011 to 2012 to facilitate a policy agreement with the mattress industry. This work led to the first mattress EPR program in the U.S. in 2013, which

became a model that same year for similar laws enacted in Rhode Island and California. In 2022, PSI mediated an agreement between the Oregon DEQ and the International Sleep Products Association to enact an updated mattress EPR law, and PSI recently launched a national dialogue with the mattress industry and other stakeholders to incorporate emerging best practices.

Eunomia complements PSI's policy leadership with deep technical expertise in EPR evaluation and cost-benefit analysis, along with a knowledge of West Virginia's solid waste and recycling systems from its *50 States of Recycling* study. PSI and Eunomia, together, provide a team that is well-equipped to deliver a rigorous, actionable study for West Virginia.

2. Scope of Work: Mandatory Project Requirements (per RFP section 4.2.2)

PSI and Eunomia will conduct a comprehensive research study and a facilitated stakeholder engagement process that reviews existing U.S. EPR program models and synthesizes best practices. The study will deliver actionable EPR policy recommendations tailored to West Virginia's unique geographic, demographic, and economic conditions.

The scope of work below describes the approach, methods, and process PSI and Eunomia will use to conduct the research and analysis; develop case studies; engage stakeholders in developing an EPR roadmap for West Virginia; write reports; and manage the project to meet and exceed the requirements of this study.

2.1 Project Management (per RFP section 4.2.2.1)

Effective project management is critical to achieving project goals on time, within budget, and to the highest standards of professional excellence. PSI and Eunomia bring a seasoned team of EPR experts with a strong track record of managing complex, fast-paced projects for government agencies across the U.S. and internationally. The team's recent collaborations – including a Minnesota study on end-of-life solar panel management policies – demonstrate a productive working relationship and shared expertise. Together, our team is uniquely positioned to successfully deliver a comprehensive national EPR study tailored to West Virginia's needs. PSI's deep technical knowledge of U.S. EPR programs and facilitation expertise, combined with Eunomia's economic and environmental modeling strengths, align with our shared project-management experience making this a strong team.

2.1.1 Project Management Approach

PSI will be the lead on project management, taking a proactive approach that prioritizes upfront planning and structural development. This approach will be augmented by regular, ongoing communication among team members and with WVDEP. This ensures smooth progress and allows barriers to be resolved quickly. The project management approach includes the following components:

1. **Workplan:** PSI will establish a detailed project workplan with milestones, tasks, and due dates for all draft and final deliverables, including deadlines for internal team and client review. Deadlines that must be met for the project to proceed unimpeded will be identified. Plans to manage risks associated with missed deadlines will be developed with input from team members and WVDEP.
2. **Clearly Defined Roles and Responsibilities:** PSI and Eunomia will clearly define roles, responsibilities, and expectations for each team member.
3. **Internal Communications:** PSI and Eunomia will establish clear expectations for the frequency, content, and method of internal project communications, which are likely to include periodic email updates and check-in calls with specific team members. This communications approach will relieve potential bottlenecks while respecting clearly defined roles and responsibilities.
4. **Report Outlines:** PSI will develop and seek DEP's input on outlines for Interim and Final reports and case studies. The outlines will clarify the data needed for research outputs and inform the cost-benefit analysis and summaries of research findings so that they can be easily inserted into the report structure to make report writing as efficient as possible – an approach we believe exceeds expectations for project management.
5. **Check-ins at Key Milestones:** Along with ongoing internal communications, the team will meet at key project milestones to assess the status of the project, make adjustments as needed to respond to new information and unexpected challenges, and solicit input from DEP and key West Virginia stakeholders.
6. **Communications with DEP:** We believe that proactive communication is a hallmark of strong project management. PSI will establish regular ongoing communications with DEP to keep the agency up to date on project work, key deliverables, and opportunities for DEP input and feedback to shape the project. PSI proposes bi-weekly email status updates and up to one, one-hour web meeting per month or at key project milestones, which will provide opportunities for DEP feedback and guidance. Additionally, PSI will be available to DEP as needed to answer questions.

2.1.2 Project Managers

PSI's Project Manager, Amanda Nicholson, will collaborate closely with Eunomia's project manager, Caitlin Kelly, to coordinate research activities and deliverable development. She will also serve as the primary liaison with WVDEP, engaging technical and subject matter experts and project directors, as appropriate to the agenda for check-in meetings.



Amanda Nicholson (PSI, Project manager) has 13 years of experience serving as project manager on complex projects funded by state and federal government agencies, ensuring work is conducted on time and within budget, and either meets or exceeds client expectations. Her project management approach blends hands-on experience in research, policy analysis, and stakeholder facilitation with project management training, enabling her to anticipate workflow needs, manage risks, and resolve challenges quickly to keep projects on track. Recently, Amanda partnered with Eunomia on two EPR-related projects. As co-facilitator of Colorado's packaging EPR advisory board, she worked with Eunomia to distill complex needs assessment data into clear meeting materials

that informed Advisory Board recommendations. She also collaborated with Eunomia to study end-of-life policy options for solar panels for the Minnesota Pollution Control Agency. Amanda will work closely with WVDEP, Eunomia's project manager, and the entire project team to ensure work is conducted in a timely manner and meets or exceeds expectations.



Caitlin Kelly (Eunomia, Project Manager) brings nearly a decade of experience helping organizations solve climate, plastic, and sustainability challenges. Caitlin has worked with diverse clients from technology firms and real asset managers to agricultural producers and waste recyclers to help evaluate, fund, and certify both plastic crediting and carbon management projects. With a background in academic research, she has a proven track record translating the best available science into practical on-the-ground solutions and brings extensive experience facilitating policy design challenges among local governments in seven countries.

2.1.3 Project Team and Organizational Chart



Darla Arians (PSI, Project Director) brings to this project more than 25 years of leadership in materials management policy and program development across public and nonprofit sectors. As PSI's policy and program director, she leads initiatives to design, advance, implement, and evaluate EPR laws across states and product areas. Previously, as EPR Lead for the Colorado Department of Public Health and Environment (CDPHE), Darla oversaw implementation of Colorado's packaging EPR program, including launching and administering the advisory board, rulemaking, and facilitating consultations with the producer responsibility organization (PRO), public stakeholders, and the advisory board, including on the needs assessment that Eunomia conducted. In her earlier role as division manager of Boulder County's Resource Conservation Division, Darla co-founded the Colorado Product Stewardship Council and led the statewide initiative that resulted in passage of the state's paint EPR law in 2014. Darla's 20 years of experience spans local and state EPR program implementation, solid and hazardous waste operations management, and policy innovation in leadership roles with Front Range Waste Diversion Enterprise Fund (FRWD), City and County of Broomfield Advisory Committee on Environmental Sustainability (ACES), and the Recycle Colorado (RC) Policy Committee. Darla will direct this national EPR study for DEP and co-facilitate the stakeholder meetings with project manager Amanda Nicholson.



Pallavi Madakasira (Eunomia, Project Director) is a seasoned professional with extensive experience in developing investment strategies, particularly within the materials and sustainable energy sectors. She has over 20 years of experience across the private and public sectors focused on materials procurement strategies and materials management. At Eunomia, Pallavi directed projects focused on mapping value chains and implications of end-of-life batteries in vehicles, consumer electronics, and solar photovoltaic panels. She has also led work developing investment strategies for the Circular Action Alliance focused on plastics source reduction in California as well as evaluating the intervention levers to reduce the reliance on single-use plastics in the healthcare sector.



Scott Cassel (PSI, Subject Matter Expert in EPR and Facilitation) has developed, helped implement, and evaluated numerous EPR programs in the U.S. since 2000 when he founded PSI. He was one of the first people in the U.S. to combine training in mediation and facilitation with technical knowledge of EPR and waste management, resulting in numerous multi-stakeholder agreements on EPR programs, including his successful mediation of the U.S. paint EPR program. Under Scott's leadership, PSI has conducted hundreds of EPR studies, evaluations, and policy development projects for government and private sector clients. He is deeply familiar with solid and hazardous waste management and recycling in the public sector, having served seven years as the director of waste policy and planning for the Massachusetts Executive Office of Environmental Affairs, where he developed and implemented state solid and hazardous waste management policies, programs, and master plans. Scott is the author of *Perspectives on Product Stewardship: Navigating an extended producer responsibility path to a circular economy* (Bernan Press, 2023), which provides an in-depth explanation of the EPR movements in the U.S., Canada, and Europe. The book includes an extensive policy discussion of EPR best practices and includes extensive case studies on EPR for batteries, paint, and packaging. Scott will advise the team on the research, best practices analysis, case study development, and stakeholder meeting design and facilitation.



Sarah Edwards (Eunomia, Subject Matter Expert in EPR) has over 25 years of experience providing support to public, private, and non-governmental organizations to advance policy, strategy, and programs to support a Circular Economy. She has a deep understanding of the recycling sector having started her career with Europe's largest recycling company Veolia where she set up curbside collection systems, managed drop-off sites, ran street cleaning contracts and managed the development of MRFs and other infrastructure. Sarah established Eunomia's North American business in 2017 and has secured projects with state and provincial government agencies, including for Ecology and Washington jurisdiction King County, on EPR, Recycling Refunds and other recycling programs. Sarah possesses a strong understanding of EPR policy and what the key components are for success, gained through supporting or leading EPR analyses throughout the U.S and Europe. Sarah understands the views of a wide range of stakeholders including haulers, producers, municipalities, and operators of material recycling facilities and is experienced in engaging with them on the subject of EPR.



Caitlin Harrington-Smith (Project Advisor) has 9 years' experience in circular economy programs and policy in the U.S. She brings strong project management expertise across areas such as EPR, DRS, circular economy policy, waste data, and material flow analysis. Her experience includes managing a project for the Washington State Department of Ecology, where Eunomia examined recycling, reuse, and source reduction targets and facilitated a community engagement process on the state's recycling system (*Washington Recycling, Reuse, and Source Reduction Target Study and Community Input Process* [2023]). Caitlin has also worked extensively on organics projects, including reviewing infrastructure and policy needs in Colorado, and has coordinated with non-

profits in the New York City Compost Project. Finally, Caitlin brings significant expertise in the compostability of compost packaging.



Jennifer Schultz (PSI, Research Staff) brings 15 years of experience in policy research, training, technical assistance and facilitated policy development to her role at PSI where she works with diverse stakeholders to develop EPR policies and programs tailored to the needs of each state. Her recent work includes research on existing mattress EPR programs in the U.S. for a national dialogue with the International Sleep Products Association, research on best practices for EPR policies across products for the Northwest Product Stewardship Council, and development of an EPR professional development toolkit with case studies on EPR programs for paint, batteries, and packaging for the Massachusetts Department of Environmental Protection. Prior to joining PSI, Jen served 11 years as program principal for environment, energy, and transportation at the National Conference of State Legislatures (NCSL), a bipartisan organization. At NCSL she provided research, training, and technical assistance on complex policy issues to legislators and staff in all states, territories, and commonwealths of the U.S., and facilitated NCSL's high-profile Public-Private Partnership on Recycling initiative. Jen holds bachelor's degrees in International Affairs and Geography and a J.D. with a focus on environmental law and policy.

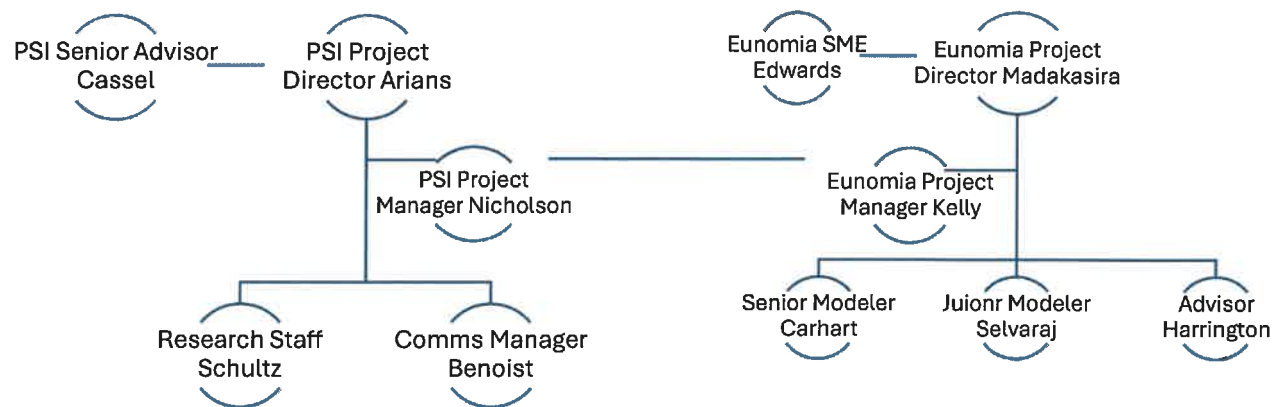


John Carhart (Senior Modeler, Eunomia) has more than 6 years of experience supporting projects requiring quantitative modeling of the economic and environmental benefits of policy initiatives in North America. Much of John's modeling work has been centered on EPR, and he has extensive experience working on projects demanding continual stakeholder consultation and deft handling of large datasets. For instance, he served as the technical lead on the *50 States of Recycling Refresh*, commissioned by Ball. Eunomia updated its state-by-state recycling rate of various packaging materials. The project included compiling and standardizing data from every state. John was the lead modeler on the project, working on the main model, refining assumptions and creating outputs. John's modeling skills were also crucial to the implementation of the Needs Assessments carried out by Eunomia. For Colorado's needs assessment, John delivered the task related to recycling end markets, and he was the modeling lead on the Maryland needs assessment. More recently, John has been acting as modeling lead for the California EPR needs assessment project. He was tasked with the mission of quantifying the tonnage of material recycled in and out of state.



Yashwini Selvaraj (Junior Modeler, Eunomia) graduated from the University of Chicago with a Master's in Public Policy Analysis. She gained valuable experience working as a Graduate Policy Consultant at Harris Policy Labs at the University of Chicago. Since joining Eunomia earlier this year as a Junior Consultant, Yashwini has worked on several projects. She has supported data gathering and assessing a variety of projects and has conducted research on a range of topics.

Project Organizational Chart



2.2 Phase 1: EPR Research (per RFP section 4.2.2.2)

PSI and Eunomia will conduct a structured analysis of existing EPR program models across the United States for electronics, batteries, paint, mattresses, tires, and fluorescent lights. The analysis will include identification of best practices and assessment of the costs and benefits of EPR for West Virginia. Consistent with RFP specifications 4.2.2.2, PSI will develop concise case studies for each of the six target products, as described in Section 2.2 below. One of these case studies will be an evaluation of West Virginia's CED EPR program for which PSI will identify strengths and performance gaps and provide options for improvement that are grounded in comparative best practices. The detailed work plan below describes the methodology and process that PSI and Eunomia will use to conduct the Phase 1 research scope of work.

2.1 EPR Research (per RFP section 4.2.2.2)

The research phase of this project will include five distinct activities, per RFP specifications 4.2.2.2:

1. Research and analysis of existing EPR programs for the six target products and identification of best practices.
2. Collection of baseline data on waste generation and current management practices for the six target products in West Virginia.
3. Analysis of the financial, socio-economic, and environmental impacts of EPR for the six target products in West Virginia
4. Development of case studies for all six target products to illustrate best practices and potential impacts for West Virginia.
5. Evaluation of West Virginia's Covered Electronic Device (CED) program, including performance analysis, identification of gaps, and recommendations for improvement.

PSI and Eunomia will consult with WVDEP and the Advisory Committee for input on data collection, the model assumptions and analysis, and the case studies and CED evaluation.

2.1.1 – Research on Existing EPR Programs and Best Practices

PSI will compile information and data on U.S. EPR policies and programs for paint, mattresses, electronics, batteries, tires, and fluorescent lights, drawing on our extensive body of knowledge and practical experience. We will supplement existing research with data from recent EPR program annual reports and information gleaned from interviews conducted with government oversight agency staff, many of whom are PSI's members, and with staff at producer responsibility organizations (PROs), some of whom are PSI partners.

PSI regularly tracks and analyzes EPR program performance metrics for multiple products and jurisdictions. For example, PSI maintains a database of collection volumes, recycling and reuse rates, convenience standards, program costs, and education and outreach investments on all 13 EPR paint programs in the U.S., which we use to provide comparative data and targeted analysis for members and partners. PSI recently used this information to develop background documents on EPR for batteries, mattresses, and paint for the Massachusetts Department of Environmental Protection (MassDEP) for a legislatively mandated EPR commission. Each document contains information on existing EPR laws and programs, performance results from existing programs, how existing programs work (including funding mechanisms, performance goals, convenience standards, stakeholder roles, governance, and compliance), baseline information about how the product is managed in Massachusetts today, and the likely impacts that EPR for each product would have on the state.

To analyze EPR policies and programs, PSI developed a unique framework, which it calls Elements of Effective EPR Policy – that breaks EPR policies into 16 standard elements that are included in all effective EPR programs. These policy factors contribute to the efficacy of EPR programs and enable PSI to educate stakeholders on each important EPR program element and develop the type of program stakeholders want. PSI will leverage the *Elements of Effective EPR* framework to analyze and compare programs across states to identify the policy and operational features that correlate with strong outcomes (e.g., performance targets, convenience standards, funding mechanisms, governance, reporting, and enforcement).

PSI will use this analysis, combined with the knowledge we have gained from numerous EPR program evaluations, to identify best practices that can be transferred or adapted for West Virginia. This past work includes an evaluation for the Connecticut Department of Energy and Environmental Protection (DEEP) on their EPR programs for electronics, paint, mattresses, and mercury thermostats; evaluations of paint EPR programs in Oregon, California, Colorado, and Minnesota; and a cross-jurisdictional comparative analyses of U.S. electronics EPR programs for the Organization for Economic Cooperation and Development (OECD). PSI also conducted several studies on HHW EPR programs across Canada for Metro (a regional government in Oregon). Through these comparative analyses and ongoing national policy workgroups, PSI has identified best practices for EPR programs for each of these products and for all EPR programs generally. These studies were used to pass the first HHW program in the US in Vermont.

2.1.2 – Baseline Data on Post-consumer Management of Target Products in West Virginia

To analyze the changes that EPR programs would have on materials management practices for the target products, PSI and Eunomia will first assemble baseline data on waste generation, end-of-life management practices and costs, and environmental impacts for each product in West Virginia. PSI will call on Advisory Committee members to provide input on available data sources, validate preliminary findings, and offer guidance on state-specific considerations to ensure that the research is grounded in West Virginia's unique context.

PSI will begin by compiling existing information from WVDEP, such as data that municipalities report to the state when applying for waste and recycling grants, in addition to recent waste characterization study data. To fill data gaps that we identify, PSI and Eunomia will design and administer an electronic survey to collect relevant data from municipalities and other jurisdictions that are responsible for the post-consumer management of target products. The survey will seek information including, but not limited to, the following:

- how residents are instructed to dispose of the target products (e.g., trash, recycling, donation, hazardous waste)
- type of collection and processing services offered
- frequency of collection services or drop-off events
- quantity of materials handled each year (e.g., gallons of paint; units of mattresses and tires; pounds of batteries, electronics, and fluorescent lamps)
- cost to hold collection events
- cost of transportation and processing
- distance the materials are transported for processing (and the names and locations of the facilities where the materials are processed)
- methods by which materials are processed (e.g., combustion, recycling, alternative daily cover)

To administer the survey, PSI will work with WVDEP and the Advisory Committee to establish a contact list (name, title, email, phone) of the solid and hazardous waste managers and other appropriate contacts throughout the state who could complete the survey. PSI will draft a letter that describes the study, explains how and why they should complete the survey, provides instructions for participating including a hyperlink to the online survey form, and a phone number they can call to get support completing the survey. WVDEP will both email and mail this communication to municipal solid and hazardous waste management contacts, and PSI will follow-up the initial communication with reminder phone calls and emails until we have received data from a representative sample across the state.

PSI will leverage the phone outreach to also conduct short interviews with municipal solid and hazardous waste managers and Advisory Committee members to better understand current operations, barriers municipalities face to collecting and managing more waste, barriers that

their constituents face in safely disposing or recycling the six target products, and existing outreach and education efforts. Combined, the quantitative and qualitative information gathered from this outreach will inform the financial, socio-economic, and environmental analysis of the impacts of EPR on the six target products.

2.1.3 – Analysis of Financial, Socio-economic, and Environment Impacts of EPR

Eunomia will adapt its proven cost-benefit modeling framework – previously applied in state EPR needs assessments for Illinois, Minnesota, Maryland, and Colorado – and tailor it specifically to West Virginia’s unique context. Eunomia will consolidate, cleanse, and harmonize all data sets to develop a robust baseline, including data collected by PSI and secondary sources, including the WVDEP waste characterization study, hazardous waste records, and other municipal surveys on collection and recycling costs for electronics, batteries, paint, mattresses, tires, and fluorescent lights. The analysis will incorporate program benchmarks such as those used by PaintCare, Call2Recycle, and state electronics programs to approximate possible program results under EPR scenarios in West Virginia. Eunomia’s proprietary dataset from its 50 States of Recycling study will supplement the analysis. For each of the six target products, Eunomia will calculate:

- the amount of material **generated** in the state in the baseline year,
- the amount of material **collected** in the baseline year, and
- the amount of material **recycled** in the baseline year.

We will then estimate the cost of managing these waste products through different end-of-life management options, including existing management practices and under EPR programs. The specific calculation methods will be adapted according to data availability. Our modeling team will establish two future cost scenarios – high ambition and low ambition – reflecting program performance assumptions.

Socio-Economic Analysis: Eunomia will design survey instruments (municipal, residential, and/or hauler) to capture the data necessary to assess social and economic factors that could impact the expansion of EPR programs in West Virginia. Eunomia will apply its comprehensive economic impact assessment framework combining material flow analysis, employment intensity factors, and input-output modeling to estimate the direct, indirect, and induced economic effects of EPR scenarios in West Virginia. Employment and local economic impacts will be evaluated including job creation, shifts in labor needs, and economic development opportunities from expanded collection and processing infrastructure. Eunomia will use EJScreen, CEJST, or other mapping tools to identify equity and distributional considerations and how they may vary across urban and rural communities, income levels, and demographic groups. Finally, Eunomia will assess consumer and community impacts such as changes in convenience, service access and potential behavior responses to new EPR programs.

Environmental Impact Analysis: Eunomia will use existing life cycle and environmental impact models to evaluate the effects of product production, disposal, and recycling across covered

material categories. Drawing from established data sources (including, but not limited to, life cycle inventories. Greenhouse gas and resource use databases), our analysis will estimate potential reductions in emissions, energy use, and resource depletion under different EPR scenarios. The analysis will focus on high-level comparative outcomes (e.g. recycling vs. disposal, reuse/refill opportunities) to allow for a more overarching comparison of selected scenarios.

Eunomia will consolidate the cost-benefit, socio-economic, and environmental analyses into concise summaries of the findings, along with an explanation of the modeling methodology, the sources of data used, and the assumptions made along with accompanying rationale for those assumptions. These analyses will be accompanied by relevant tables, charts, and other graphical data representation to support reader comprehension. Eunomia will also identify data gaps and areas for future study. The summaries will highlight the environmental, cost, and economic implications of policy choices and will be incorporated into the Interim and Final reports to inform policy recommendations.

2.2 Case Studies and CED Program Analysis (per RFP section 4.2.2.2)

2.2.1 – Case Studies

Armed with the cost-benefit analysis findings, PSI will develop a short case study for each of the six target products. The case studies will appear in the Interim Report and can also serve as stand-alone pieces. The case studies will illustrate the expected outcomes for a typical EPR program for the product when best practices are incorporated into program design and implementation. The case study will use examples from existing programs that incorporate best practices and will estimate the impacts of a similarly designed program tailored to the West Virginia context. The case studies will include the following information:

- For the example program, how the product was managed before EPR, including baseline data (if available).
- How and by whom the product was identified for an EPR solution.
- How the EPR policy was developed and established in the state.
- Key elements of EPR policy model, program design, and program operations, including funding mechanisms, performance goals, convenience standards, governance, enforcement, stakeholder roles and responsibilities.
- How the example program compares and contrasts with other programs for the same product in other states, and identification of the EPR best practices and other factors that most contribute to strong program results (e.g., high collection rates, high consumer participation, recycling efficiency, cost efficiency) as compared to other programs for the same product.
- Any amendments or other changes made to address challenges and/or improve the program between initial implementation and today.

- Estimated impacts of a similarly designed EPR program for the product in West Virginia based on the analysis.

2.2.2 – Covered Electronic Devices (CED) Program Analysis

PSI will also develop an additional case study on the West Virginia CED EPR program. The West Virginia CED EPR case study will include all the key information above, plus a section outlining strengths and areas for improvement. The case study will include recommendations for specific EPR best practices that could be incorporated into West Virginia’s program to enhance performance, as well as identify certain factors that may contribute to outcomes in West Virginia that are not related to EPR program design (e.g., demographic, geographic) but which might be addressed through complementary policies or unique program approaches that have worked in states with similar factors.

2.3 Framework and EPR Roadmap (per RFP section 4.2.2.2)

As part of the interim report, PSI will offer a draft EPR policy framework and draft implementation roadmap for DEP and other key West Virginia stakeholders to consider, refine, and further develop through facilitated stakeholder meetings in Phase Two of the project.

2.3.1 – Framework

PSI’s CEO and founder developed a framework for designing and analyzing EPR policy models called the *Elements of EPR*. This evaluative and analytical framework includes 16 policy components for which there are generally recognized best practices that should be adhered to in all EPR programs, as well as options that can be customized based on the specific needs of a state. PSI will develop a draft “*Elements of EPR for West Virginia*” that will be included in the Interim Report and refined through stakeholder discussion during Phase Two facilitated meetings. Once final, the *Elements of EPR for West Virginia* will be the basic policy model on which EPR programs are developed for the state. The elements are as follows:

- | | |
|---------------------------------|---|
| 1. Covered materials / products | 10. Outreach & Education Requirements |
| 2. Covered entities | 11. Equity and Environmental Justice |
| 3. Collection and Convenience | 12. Enforcement and Penalties |
| 4. Responsible party (producer) | 13. Stewardship Plan Contents |
| 5. Governance | 14. Annual Report Contents |
| 6. Funding Inputs | 15. Implementation timeline |
| 7. Funding Allocations | 16. Definitions & Additional Components |
| 8. Design for Environment | |
| 9. Performance Standards | |

2.3.2 – Roadmap

In addition to the policy framework, PSI will develop a draft *Roadmap to EPR for West Virginia*, which will serve as a draft implementation plan. This high-level roadmap will provide guidance on identifying and prioritizing products for EPR programs, developing draft policies, seeking stakeholder input and building support for the policy, and preparing stakeholders and the public for program implementation to maximize public adoption and participation. The Roadmap may include the following components, which have been used successfully in other states:

1. Establish an EPR council, committee, or other group whose focus is to advance EPR programs within the state.
2. Prioritize products for EPR solutions, using this EPR Study as a guide.
3. Engage the relevant industry in discussions about the problems, goals, and interests in an EPR program and in bill development; find a legislative sponsor
4. Develop and distribute educational materials, engaging key stakeholders in educational conversations to get their input on the bill and gain their support.
5. Build a statewide, multi-stakeholder coalition in support of EPR for the product
6. Once established by law, implement the EPR program.
7. Identify the next product for an EPR solution and follow steps 3 – 6.
8. After the first program, after 5 years, and again after 10 years, evaluate the EPR program to assess the impact it has had against estimates in this Study, identify strengths and areas for improvement, and establish a plan for updating the program by statute, in regulations, or in the program plan.

This draft roadmap will be part of the Interim Report and will be discussed, refined, and expanded during facilitated stakeholder meetings in Phase Two.

2.4 Interim Report (per RFP section 4.2.2.2)

PSI will compile the research and case studies into an Interim Report, which will serve as a background document for the two facilitated multi-stakeholder meetings. The interim report will include the following sections:

1. An executive summary, which will outline the goals of the project, synthesize the preliminary research findings, identify next steps, and notify stakeholders about how they can provide further input.
2. A summary of the approach and methodologies used to conduct research and preliminary analysis.
3. A section on challenges encountered, remaining data gaps, and potential solutions or further research to fill data gaps.
4. Detailed overview of the research findings, including the following:
 - a. an overview of existing EPR program operations and results
 - b. succinct case studies for each product illustrating best practices
 - c. analysis and recommendations for the West Virginia electronic waste EPR program
 - d. a cost/benefit analysis of EPR for each of the six products in West Virginia.
 - e. Socio-economic and environmental impacts of EPR for the six products in West Virginia.

5. Preliminary EPR recommendations for further discussion during the facilitated stakeholder meetings.
6. A draft policy framework, called the *Elements of EPR for West Virginia*.
7. A draft roadmap to EPR.
8. Summary of next steps and anticipated timeline.

PSI will call on Advisory Committee members to review the Interim Report, provide feedback on draft recommendations, and identify priority areas for discussion in advance of the stakeholder meetings. Their input will ensure that the facilitated meetings focus on the most critical issues and that the final roadmap reflects state-specific priorities.

Report writing process: PSI will develop an outline for the report before research begins so that the research can be efficiently conducted to produce the information specifically needed for the report. PSI will share this outline with DEP for input at the beginning of the project, and incorporate their feedback to establish the final outline, which will be shared with the project team. During the research and analysis phase, team members will summarize the findings of their research and analyses for incorporation into the interim report.

PSI's research staff and project manager will be responsible for compiling the summarized findings into the report outline and writing the draft interim report, including synthesizing the findings and recommendations, seeking input and review from the technical and subject matter experts at PSI and Eunomia. PSI's project director will review the draft report for technical accuracy, and PSI's communications manager will review for proof reading and copy editing, before PSI submits the draft interim report to DEP.

WVDEP staff will have two weeks to review the first draft interim report and submit edits, feedback, and questions to the team. PSI and Eunomia will meet with WVDEP staff to discuss their feedback and answer questions. PSI and Eunomia will incorporate WVDEP's feedback and submit a final draft interim report for further review. Upon receiving WVDEP's further input, PSI will incorporate final edits and submit the final interim report.

2.3 Phase 2: Final Report & EPR Recommendations (per RFP section 4.2.2.3)

In Phase Two, PSI will conduct a stakeholder engagement process that includes 1:1 and small group interviews and two facilitated stakeholder meetings to present the preliminary research findings, seek feedback and additional input on the research and analysis, cases studies, draft EPR framework, and draft roadmap for EPR implementation in West Virginia, and refine the recommendations to reflect the needs of stakeholders in the state.

The stakeholder meetings will serve two primary purposes:

1. Ensure that the research, analysis, recommendations, and roadmap reflect the needs and goals of stakeholders in the state, and
2. Begin building EPR knowledge, capacity, and support among the stakeholders that will play crucial roles in creating, establishing, and implementing future EPR programs.

PSI will incorporate the input and feedback received through this stakeholder engagement process into a Final Report, which will clearly communicate the research findings, analysis, and recommendations for expanding EPR programs in West Virginia beyond electronic devices. The Final Report will serve as a roadmap to EPR design and implementation in the state.

Throughout Phase Two, PSI will call on Advisory Committee members to review meeting agendas, review draft recommendations, and identify state-specific priorities to ensure that stakeholder engagement directly informs the Final Report and roadmap.

2.3.1 Facilitated Workshops (per RFP section 4.2.2.3)

PSI will design a process that engages key stakeholders in developing recommendations and a roadmap for expanding EPR in West Virginia. The process will involve the following tasks:

1. **Stakeholder analysis:** PSI will consult with the WVDEP project team and Advisory Committee to identify all the key stakeholders who should participate in the two stakeholder meetings, including local governments, industry (producers), waste management and recycling companies, retailers, institutions, community groups and nonprofits. With WVDEP and the Advisory Committee, PSI will establish a contact list.
2. **Invitations and Interviews:** PSI will collaborate with DEP to develop and send to all key stakeholders an official invitation letter that describes goals of the stakeholder meetings, the importance of their participation, and the national EPR study. PSI will share the Interim Report along with the invitation and invite stakeholders to provide their feedback by email or phone call. PSI will track RSVPs and schedule interviews with small groups of like-minded stakeholders or individually to better understand their perspectives and interests in EPR and their goals for the stakeholder meeting. Through these interviews, PSI will also seek feedback on the research findings and preliminary analysis and recommendations. PSI will synthesize the key insights from these interviews in notes.
3. **Meeting #1:** PSI will design, coordinate and facilitate a stakeholder meeting, including developing the agenda, securing presenters, developing the meeting materials and slides, and coordinating a venue (either hybrid or virtual only). The half-day (3-hour) virtual meeting will include, but may not be limited to, the following agenda items.
 - a. DEP Welcome Address
 - b. Overview of the project goals, process, and progress to date
 - c. Presentations from key stakeholders on the problems posed by the target waste products and challenges of managing those products in West Virginia.

- d. Presentation on the research findings and preliminary analysis, followed by Q&A
- e. Facilitated feedback discussion on the research findings, preliminary analysis, and draft recommendations, including identifying questions that require additional research or review of the analysis.
- f. Presentations from industry representatives about existing EPR programs for each of the target products.
- g. Introduction of the draft EPR policy framework and roadmap, followed by Q&A
- h. Meeting recap and next steps / Adjourn

After the meeting, PSI will summarize the discussion topics, key insights, and next steps in a meeting summary, which we will share first with DEP for input and then with participating stakeholders for input. PSI and Eunomia will also meet with DEP to debrief and assess how stakeholder feedback should be incorporated into additional research or revised analysis.

If it is preferred by WVDEP and key stakeholders, PSI will hold the first meeting in-person and extend the meeting to 6 hours to make the most of people's travel time. In-person meetings can help establish relationships among stakeholders and lay a strong foundation for future collaboration. However, PSI is skilled at bringing people together both online as well as in-person and can adapt the engagement to fit the interests of WVDEP. This decision can be made near the start of the project.

4. **Follow-up Interviews:** In between the first and second meeting, PSI will conduct follow-up interviews, as needed, with key stakeholders to clarify their input, answer their questions, and gather additional information and data to support revised analysis. PSI will summarize the insights from these interviews.
5. **Additional Research and Analysis:** Based on feedback from stakeholders during the first meeting, PSI and Eunomia will gather additional data and information, revise modeling assumptions, if needed, and rerun the analysis with the new information.
6. **Meeting #2:** The goal of the second meeting is to provide a forum for stakeholders to shape the recommendations, EPR framework, and roadmap. The half-day (3-hour) virtual meeting will include, but may not be limited to, the following agenda items.
 - a. Recap of the project goals, preliminary research findings, outcomes of the first meeting, summary of additional research conducted after the first meeting.
 - b. Presentation on the revised analysis and recommendations followed by Q&A and facilitated discussion to refine and seek consensus on the recommendations.
 - c. Presentation on the draft EPR framework followed by Q&A and discussion.
 - d. Presentation of the draft roadmap to EPR followed by Q&A and discussion.
 - e. Meeting recap and next steps / Adjourn
7. **Meeting Summary:** PSI will synthesize the discussion, feedback, and outcomes of the two stakeholder meetings into a meeting summary, which we will share first with DEP

for input and then with participating stakeholders for feedback. PSI will incorporate the feedback into the final meeting summary, which will be an Appendix to the Final Report.

Advisory Committee members will be consulted throughout the workshops to review agenda items, ensure balanced stakeholder representation, and confirm that the key issues raised are integrated into the revised recommendations.

2.3.2 Draft Final Report (per RFP section 4.2.2.3)

PSI will develop a Final Report that clearly communicates the project goals, research methodologies and findings, stakeholder input process and insights, recommendations for expanding EPR in West Virginia, and an EPR framework and implementation roadmap.

Final Analysis: After the final stakeholder meeting, PSI and Eunomia will meet with WVDEP to review the final meeting summary, debrief on stakeholder input, and assess how stakeholder input validates or reshapes the draft analysis and recommendations for EPR. PSI, Eunomia, and WVDEP will take into consideration feedback from all stakeholder groups and combine it with the results of the financial, socio-economic, and environmental modeling analysis to develop an objective assessment of the impacts of EPR on the state and finalize recommendations that respond to state needs.

Report writing process: PSI will leverage much of the content from the Interim Report, updating the analysis, recommendations, framework, and roadmap sections to reflect stakeholder input received during interviews and meetings.

The Final Report will include the following sections:

1. An executive summary, which will outline the goals of the project, synthesize the research findings and analysis, and highlight the recommendations, including the framework and roadmap for EPR implementation.
2. An overview of the problems of the six waste products and goals for improving end-of-life management of these waste streams.
3. A summary of the approach and methodologies used for stakeholder engagement, research, data-gathering, and analysis, including identification of remaining data gaps.
4. Detailed presentation of the research findings, including an overview of existing EPR programs and results, best practices, case studies illustrating best practices.
5. Detailed description of the research findings and analysis, including tables, charts, and other graphical representations of the data about waste generation, collection and recycling amounts and costs now and under EPR, and other impacts of EPR.
6. Analysis and recommendations of the CED EPR program and recommendations for expanding EPR beyond electronics.
7. A final policy framework, called the *Elements of EPR for West Virginia*.
8. A final Roadmap to EPR in West Virginia.
9. Appendix A: Interim Report
10. Appendix B: Stakeholder Meeting Summaries
11. Appendix C: Interview Summaries

PSI's research staff and project manager will be responsible for writing the draft final report. PSI's project director and senior advisor will review the draft final report for technical accuracy, and PSI's communications manager will review for proof reading and copy editing, before PSI submits the draft interim report to WVDEP.

WVDEP staff will have two weeks to review the draft final report and submit redline edits, feedback, and questions to the team. PSI and Eunomia will meet with WVDEP staff to discuss their feedback and answer questions.

2.3.3 Final Report (per RFP specifications 4.2.2.3)

The Final Report will represent the culmination of research, modeling, Advisory Committee input, stakeholder engagement, and WVDEP guidance. It will provide a comprehensive and actionable roadmap for EPR implementation. PSI and Eunomia will incorporate WVDEP's feedback into a second draft of the Final Report and submit it for further review. Upon receiving WVDEP's further input, PSI will incorporate final edits and ensure the report is professionally prepared and suitable for public dissemination. PSI will deliver the Final Report to WVDEP in both a print-ready format and an editable digital version.

3. Qualifications & Experience (per RFP specifications 4.3.1)



The **Product Stewardship Institute (PSI)** is a policy expert and consulting nonprofit that develops extended producer responsibility (EPR) policies and programs in the U.S. Since 2000, PSI's technical research, multi-stakeholder facilitated dialogues, pilot projects, education, and policy models have contributed to enactment of 146 EPR laws in 34 states and Washington D.C.

across 21 product categories, including packaging. PSI's members include state and local government agencies in 48 states, and we partner with more than 120 businesses, academic institutions, and nonprofits. PSI has a long history of working with public entities to help them fulfill their unique role of balancing the interests of businesses, governments, and environmental groups to create sustainable policy solutions that meet the needs of all key stakeholders. PSI's approach integrates specialized skills in multi-stakeholder facilitation with technical expertise in EPR to ensure policy innovations are translated successfully into real-world programs. The PSI team is prepared to provide WVDEP with a comprehensive national EPR study and facilitated stakeholder engagement process that results in recommendations and a roadmap uniquely suited to the West Virginia context.



Eunomia Research & Consulting is an independent, international environmental consultancy with over 24 years of experience, specializing in zero waste and circular economy programs, policy, systems, and technologies. With a team of over 140 consultants, including economists, policy experts, zero waste planners, life cycle assessors, data analysts, and experts in various circular economy sectors, Eunomia operates from office locations in North America, Europe, and New Zealand. Eunomia's experience includes supporting local and regional governments for more than two decades in designing, implementing, and evaluating effective waste and recycling services. The team ensures alignment with the waste hierarchy and principles of a circular economy, while considering climate impact, equity, and environmental justice. Eunomia has worked closely with cities, municipalities, and states across North America. Their projects involve developing plans, reviewing and calculating service costs, and formulating policies related to zero waste and the circular economy, including extended producer responsibility (EPR) and recycled content mandates. Eunomia collaborates with local, national, and supranational governments, non-governmental organizations, consumer goods brands, and technology developers. This broad spectrum of clients allows the consultancy to understand various stakeholder perspectives and develop solutions that promote circularity across different sectors and materials.

3.1 Expertise in Extended Producer Responsibility (EPR) (per RFP section 4.3.1.1)

PSI and Eunomia each bring more than two decades of experience conducting rigorous EPR research in the U.S. and internationally. Since 2000, PSI has specialized exclusively in research, policy development, program implementation, and evaluation of EPR programs. PSI was the first national organization to systematically advance EPR policy solutions in the United States by analyzing program models in Europe and Canada and adapting them to the unique political and waste-management landscape of the U.S. Our team has worked closely with government agencies, manufacturers, recyclers, non-profits and EPR experts in Europe and Canada to identify best practices for EPR program design and implementation, and—with our U.S. government members—to translate those lessons into viable models for effective implementation at the state and local levels. Our expertise spans more than 20 waste streams, including paint, mattresses, electronics, batteries, tires, and fluorescent lights.

The highly successful PaintCare program, now operating in 12 states and Washington, D.C., exemplifies PSI's role in transforming international stewardship concepts into successful U.S. policies. For this project, PSI mediated a model paint EPR policy among over 300 stakeholders that was informed by eight technical project workgroups, including a full lifecycle assessment and an infrastructure needs analysis. PSI's experience extends to developing and refining EPR policies for batteries of all types, including portable, EV, and Battery Energy Storage Systems (BESS). PSI was instrumental in facilitating the first industry-agreed model bill for battery EPR, which informed the District of Columbia's comprehensive 2021 law covering rechargeable, single-use, and embedded batteries, and later developed a consensus-based EPR policy model

for BESS for the Connecticut Green Bank. PSI also helped modernize Oregon's longstanding electronics EPR law through a facilitated stakeholder process that achieved near-unanimous legislative support.

Beyond policy development, PSI has conducted most of the EPR program evaluations that exist on EPR in the U.S., including a statewide evaluation of EPR programs for the Connecticut DEEP, a comparative analysis of 25 state electronics EPR programs for the OECD, and targeted studies on EPR for mattresses, tires, batteries, and fluorescent lights for numerous state and local agencies. Our operational expertise is grounded in real-world implementation: PSI has designed, operated, and evaluated pilot projects that informed subsequent legislation, such as the 2004 computer take-back pilot with Staples across five northeast states that laid the groundwork for today's nationwide retail electronics collection network.

Eunomia complements PSI's policy leadership with deep technical expertise in EPR evaluation and system modeling. Eunomia is a global leader in EPR, having completed eight packaging and materials management needs assessments across the U.S.—including Minnesota, Illinois, California, Maryland, Colorado, Washington, and Oregon—and parallel studies in Canada (Alberta, Yukon, British Columbia, and Ontario). Both Eunomia and PSI are currently subcontractors to Eastern Research Group, Inc., working with the U.S. EPA and Department of Energy to develop an EPR framework for batteries under the Bipartisan Infrastructure Law. Eunomia has led analyses of strategies and technologies to strengthen circular-economy infrastructure, while PSI has conducted case studies on battery EPR, provided expertise on best-practices, and contributed substantially to the EPR framework design document.

3.2 Environmental & Economic Impact Assessment (per RFP section 4.3.1.2)

Eunomia and PSI have extensive experience evaluating the environmental, financial, and operational performance of EPR and waste-management systems. Team members of both organizations have conducted cost-benefit analyses, lifecycle assessments, and environmental impact studies that quantify projected or actual real-world outcomes of policies and programs and inform data-driven policy decisions. Our work helps governments, producer responsibility organizations, and other stakeholders understand program costs, efficiencies, and environmental benefits across multiple product categories.

PSI's most recent work includes estimating the financial and operational impacts of EPR for paint, mattresses, and batteries on waste management systems in Massachusetts for the MassDEP. We are also developing impact assessment tools for a toolkit for Massachusetts to local governments to help them estimate the financial and operational benefits that EPR would have on their communities.

Eunomia's environmental and economic-impact work includes leading the Colorado Packaging and Paper Products Needs Assessment for Circular Action Alliance, evaluating system

performance, costs, and infrastructure needs across every municipality in the state. The firm also completed the Recycling, Reuse, and Source Reduction Target Study for the Washington Department of Ecology, combining quantitative modeling with statewide engagement under a compressed legislative schedule, and has delivered lifecycle and cost-benefit analyses for the Alberta Recycling Management Authority and the Compostable Coalition UK. Additional case studies of Eunomia's environmental and economic impact analyses can be found in Appendix A.

In 2024, Eunomia and PSI worked together to conduct a Solar PV Panel Reuse and Recycling Study for the Minnesota Pollution Control Agency. The team analyzed end-of-life management options for solar energy systems. The work included a literature review, data collection, economic and environmental impact modeling, and stakeholder workshops. Eunomia modeled five policy scenarios and developed legislative recommendations for a comprehensive management system.

Together, PSI and Eunomia apply analytical rigor and policy insight to quantify both environmental and economic impacts, ensuring that EPR and circular-economy programs are efficient, equitable, and effective. We are also highly skilled at communicating highly technical information to the full range of stakeholders, including policymakers, nontechnical individuals, and those with a deep technical understanding.

3.3 Research & Data Collection (per RFP section 4.3.1.3)

PSI and Eunomia both have extensive experience conducting primary and secondary research for numerous EPR research studies, program evaluations, and needs assessments in the U.S. and internationally. These research methods include literature reviews, interviews with key stakeholders, data collection, and analysis. Both organizations have sourced data from a combination of state and national sources, including waste characterization studies, hazardous waste records, and municipal surveys. We have also conducted additional surveys and stakeholder outreach to fill data gaps in order to inform robust cost-benefit analyses.

Recently, Eunomia has used these research and data collection techniques to conduct packaging EPR needs assessments in eight states. In Illinois, for example, they are currently conducting a comprehensive statewide needs assessment covering recycling, reuse, composting, and waste reduction for packaging materials. Their approach combines an in-depth review of existing data sources with extensive primary research. The outcome will be a transparent and replicable model capable of estimating waste generation, diversion rates, system costs, and greenhouse gas impacts, thereby providing Illinois with actionable insights and a robust evidence base for future policy decisions.

PSI has led comparative analyses and evaluations of EPR policies and programs for more than 20 waste streams, including the six targeted in this study, and maintains databases of performance metrics for programs like paint, mattresses, and electronics. For example, the Connecticut DEEP hired PSI in 2016 to conduct a statewide evaluation of the state's four EPR programs for

electronics, paint, mattresses, and mercury thermostats. The study involved collecting waste generation, baseline collection and recycling quantities and costs, and EPR program data; an analysis of the financial, economic, and environmental impacts of the programs; and developing recommendations for the program implementation. PSI has conducted similar studies and evaluations for paint EPR programs in Oregon, California, Colorado, and Minnesota for PaintCare, an evaluation of the 25 electronics EPR programs in the U.S. for a 2013 report to OECD.

Recently, PSI developed streamlined briefing documents on EPR for batteries, mattresses, and paint for the MassDEP for a legislatively mandated EPR commission. Each document contains information on the performance of existing EPR laws and programs, how existing programs work on the ground, available baseline information about how the product is managed in Massachusetts today, and a high-level analysis of the likely impacts that EPR for each product would have on the state. Although that project budget and scope was smaller than what is proposed for WVDEP, PSI will be able to build upon that work to efficiently conduct the national EPR study for WVDEP. PSI has also developed more extensive background briefing documents on batteries, tires, paint, electronics, and other products as part of national policy development dialogues.

Together, the PSI and Eunomia team offers a proven ability to synthesize complex data, identify best practices, and deliver actionable insights tailored to state-specific contexts.

3.4 Engagement & Policy Communication (per RFP section 4.3.1.4)

Facilitation and communication expertise: Over the past 25 years, PSI has developed specialized expertise in multi-stakeholder facilitation and consensus-building to advance end-of-life policies for products such as batteries, electronics, paint, mattresses, tires, and mercury thermostats. For example, PSI's national, multi-stakeholder dialogue process on paint with over 300 stakeholders led to two memorandums of understanding and a consensus policy model that underpins paint EPR programs in 12 states and the District of Columbia.

The team is highly proficient at designing and facilitating strategic engagement processes. These processes translate complex technical information into clear, accessible materials that foster informed discussion and collaborative decision-making. This work involves stakeholder analysis, technical research, stakeholder interviews, and the development of background briefing documents and educational meeting materials, as well as meeting agendas, summaries, and slides. Since 2023, PSI has facilitated Colorado's multi-stakeholder packaging EPR advisory board, working with Eunomia to distill technical needs assessment findings into balanced, actionable materials for stakeholder decisions.

Experience working for public agencies: PSI and Eunomia both have a long history of collaboration with public agencies at all levels – local, state, regional, federal, and international levels. PSI is governed by a board of state and local officials who manage solid and hazardous

waste systems, and regularly partners with government members to design, implement, and evaluate end-of-life management programs. Our work supports policymakers in balancing business, government, and environmental interests to develop sustainable, effective solutions. Some of PSI's government clients include environmental and public health agencies in Alaska, Connecticut, Colorado, Hawaii, Illinois, Massachusetts, Minnesota, Missouri, New York, Oklahoma, Oregon, Rhode Island, Vermont, and Wisconsin, as well as the U.S. Environmental Protection Agency, the U.S. Department of Agriculture, and local entities like the Hazardous Waste Program in King County, Washington.

Eunomia adds complementary experience working directly with government agencies and community partners to translate complex technical findings into clear, actionable recommendations. Their projects often combine quantitative modeling with inclusive stakeholder consultation. Examples include the *Recycling, Reuse, and Source Reduction Target Study and Community Input Process* for the Washington Department of Ecology, which gathered resident feedback within a tight legislative timeline; and the *Solar PV Panel Reuse and Recycling Study* for the Minnesota Pollution Control Agency, which integrated stakeholder workshops into policy scenario development. Eunomia also led broad stakeholder outreach for CalRecycle's packaging needs assessments in California, ensuring the perspectives of rural, urban, and underserved communities were reflected in policy recommendations

3.5 Project Management & Report Development (per RFP section 4.3.1.5)

PSI and Eunomia have extensive project management and report development experience, having delivered hundreds of complex, large-scale research projects on time and within budget for U.S. and international government agencies, including those with statutory deadlines. For example, the solar panel policy modeling project that Eunomia and PSI conducted for the Minnesota Pollution Control Agency was a legislatively required study with a hard deadline to report the legislature. Eunomia and PSI efficiently conducted research, modeling, stakeholder meetings, and report writing. Similarly, the packaging EPR needs assessments that Eunomia has conducted in eight states have faced statutory and regulatory deadlines – all of which have been met on time.

PSI and Eunomia manage complex, fast-paced projects through an approach that emphasizes proactive communication, transparent scheduling, risk management, and accountability. We have strong team structures and oversight. Each project is led by a project director and managed daily by a dedicated project manager who ensures that deliverables are complete by deadline. Technical staff conduct modeling and research, and communications staff support plain-language meeting materials and reports. We use standard project management tools, including MS Teams and Zoho Projects to track and monitor progress and check-in regularly with team members and clients to ensure full transparency. We manage risk by planning ahead as much as possible, avoiding delays by building in flexibility on timelines where possible and swiftly addressing barriers when they arise.

Together, PSI and Eunomia have developed a collaborative, repeatable model for delivering complex projects that combine rigorous analysis with meaningful stakeholder engagement.

3.6 Knowledge of West Virginia Context (per RFP section 4.3.1.6)

Eunomia has gained a strong understanding of West Virginia's waste systems by conducting its 50 States of Recycling report. Although PSI has not worked extensively in West Virginia, PSI has worked in states as diverse as Oklahoma and Oregon, Maine and Florida, Alaska and Hawai'i – each with its own unique waste management system, regulatory environment, and geographic and socio-economic conditions. We are familiar with the challenges of building convenient collection and recycling infrastructure at reasonable costs in remote and less densely populated areas. We are highly attuned to the fact that what is convenient for one socio-economic or age demographic is not necessarily convenient for another. As a national nonprofit with membership from state and local governments in 48 states, PSI has become skilled at quickly learning from our clients and stakeholders about the materials management landscape and political and economic context of each state where we work. PSI will approach working in West Virginia as we have other states – with curiosity, respect, and a zeal for solving challenging materials management problems.

3.7 References (per RFP section 4.3.1.7)

PSI and Eunomia Reference

Project Name: Solar PV Panel Reuse and Recycling Study

Project Year: 2024-2025

Client: Minnesota Pollution Control Agency

Reference Name: Amanda Cotton

Reference email and phone: Amanda.Cotton@state.mn.us

Description: MPCA contracted Eunomia and PSI to conduct a comprehensive study on system options for solar panel end of life (including options for battery recycling). The work began with a literature review and extensive data collection to understand Minnesota's current solar waste landscape. Eunomia and PSI conducted 1:1 interviews and stakeholder workshops throughout the process to gather input, refine policy options and modeling assumptions. The team modeled five distinct policy scenarios, the findings of which formed the basis for a report to the legislature with recommendations for a statewide management system.

PSI References

Project Name: Background Documents and Technical Support for the EPR Commission

Project Year: 2025

Client: Massachusetts Department of Environmental Protection

Reference Name: Greg Cooper

Reference Email and Phone: greg.cooper@state.ma.us; (617) 571-6782

Description: Tasked by the legislature with establishing a commission to study EPR, MassDEP contacted PSI to support them with background briefing documents for each of the five

commission meetings, each addressing a different target product. To support meetings on paint, batteries, and mattresses, PSI developed 10 to 20-page documents that included information about how each EPR program works, results from existing programs, key policy features and discussion topics, and an analysis of the likely impacts of EPR for the products on the state. The documents supported productive discussion and resulted in the commission recommending to the legislature that the state pursue paint EPR. PSI also provided technical support and background information on electronics for two workgroup discussions held as part of the commission.

Project Names: Battery EPR Dialogue, Tires EPR Dialogue, Connecticut EPR Program Evaluation, Mattress EPR policy development

Project Year: 2014, 2014-2015, 2016-2017, 2011-2012

Client: Connecticut Department of Energy and Environmental Protection

Reference Name: Tom Metzner

Reference Email and Phone: tom.metzner@ct.gov; (860) 874-7121

Description: In 2014 and 2015, Connecticut DEEP hired PSI to convene stakeholders in two full-day national discussions on EPR, one for batteries and one for tires. Both meetings involved stakeholder analysis, interviews, research and data analysis, a background briefing document, and meeting design and facilitation that fostered productive discussion and decision-making. The 2014 meeting on battery EPR resulted in a proposed policy that garnered support from all four industry associations for the first time ever. The model was used in Vermont to enact the first primary battery law in the U.S. and was subsequently refined and expanded by PSI and its members. That model informed battery EPR laws in Washington D.C., California, Washington, and Illinois, among others. The 2015 national, full-day meeting on tire EPR resulted in a model that Connecticut used in 2023 to establish the first tire EPR program in the United States. In 2016, DEEP hired PSI again to conduct an evaluation of all four of its EPR programs. The evaluation involved collecting baseline data, EPR program data, and conducting an analysis of the financial, economic and job creation, and environmental impacts of the program on the State of Connecticut. Prior to these projects, in 2011-2012, PSI worked closely with DEEP and the Connecticut Product Stewardship Council to develop a mattress EPR policy model for the state. The work included gathering baseline data on current mattress management, research on best practices for mattress collection and recycling, and stakeholder outreach. Connecticut established the first mattress EPR law in the country as a result of this work.

Project Name: Oregon Electronics EPR Amendment Bill Development

Project Year: 2022-2023

Client: Oregon Department of Environmental Quality (DEQ)

Reference Name: Abby Boudouris

Reference Email and Phone: abby.boudouris@deq.oregon.gov; (503) 490-4624

Description: As facilitator and electronics EPR technical expert, PSI engaged Oregon stakeholders in a series of workshops and small-group meetings to modernize their longstanding electronics recycling program by incorporating best practices. The work involved policy analysis, assessing stakeholder and infrastructure needs (including ArcGIS mapping) and development of an amendment bill, which passed the legislature unanimously.

Eunomia References

Project Name: Colorado Needs Assessment

Project Year: 2022-2024

Client: Circular Action Alliance

Reference Name and Job Title: Peter Hargreave, President

Reference email and phone: phargreave@policyintegrity.ca

Description: Colorado was one of the first states in the U.S. to pass Extended Producer Responsibility legislation for packaging and paper products. As part of this legislation the state selected Circular Action Alliance (CAA) to be the producer responsibility organization. CAA selected HDR and Eunomia to conduct a needs assessment to evaluate the current state of recycling in Colorado and the potential cost of meeting different recycling targets based on different systems. This project included extensive research of every municipality in the state, surveys sent to every municipality and county in the state, interviews with end markets, MRFs, and haulers to learn about their systems and costs, and evaluating what materials could be collected under EPR in the state. This all fed into a detailed modeling exercise to estimate the operating and capital costs of a new recycling system.

Project Name: Recycling, Reuse, & Source Reduction Target Study & Community Input Process

Project Year: 2023

Client: Washington Department of Ecology

Reference Name and Job Title: Kara Steward, Scientist

Reference email and phone: kara.steward@ecy.wa.gov; 564-999-0555

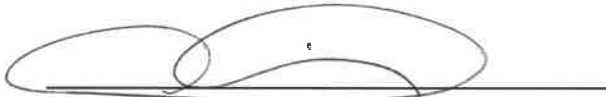
Description: In 2023, the Washington Department of Ecology (Ecology) was directed by the state legislature via Engrossed Substitute Senate Bill 5187 Section 302 (20) to contract for a study that (1) develops recycling, reuse, and source reduction (achieved solely by eliminating plastic components) performance target rates for consumer paper and packaging material and (2) a community input process to gather input from Washington residents about the state's recycling system. Packaging material that was covered included rigid and flexible plastic, paper, aluminum, steel, and glass packaging material. The project was conducted in a highly compressed timeframe: the contract was signed on July 21, 2023 and the resulting report was delivered by the legislatively mandated deadline of December 1, 2023, a little more than four months later.

Separate Attachment Note: Cost Proposal

Accompanying this proposal, in a separate sealed envelope, please find five copies of the Product Stewardship Institute's Cost Proposal.

RFP Acknowledgement

By signing below, I certify that I have reviewed this Request for Proposal in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.



(Signature)

Product Stewardship Institute, Inc.
(Company)

Amanda Nicholson, Chief of Operations
(Representative Name, Title)

(617) 236-4833 / No Fax
(Contact Phone / Fax Number)

October 28, 2025
(Date)

Addendum Acknowledgement and Designated Contact Forms

See following pages.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- ☒ Addendum No. 1
- ☒ Addendum No. 2
- ☐ Addendum No. 3
- ☐ Addendum No. 4
- ☐ Addendum No. 5

- ☐ Addendum No. 6
- ☐ Addendum No. 7
- ☐ Addendum No. 8
- ☐ Addendum No. 9
- ☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

PRODUCT STEWARDSHIP INSTITUTE
Company

[Signature]
Authorized Signature

10/28/2025
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Amanda Nicholson, Chief of Operations

(Address) 1 Beacon Street, Floor 15, Boston, MA 02108

(Phone Number) / (Fax Number) 617-236-4833 / No Fax Number

(email address) amanda@productstewardship.us

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

Product Stewardship Institute

(Company)

(Signature of Authorized Representative)

AMANDA NICHOLSON, CHIEF OF OPERATIONS

(Printed Name and Title of Authorized Representative) (Date)

617-236-4833 / No Fax Number

(Phone Number) (Fax Number)

amanda@productstewardship.us

(Email Address)

Appendix A: Eunomia Example Projects

Illinois Needs Assessment (Complete in November 2026)

Overall Strategy

Eunomia is currently delivering a comprehensive statewide needs assessment covering recycling, reuse, composting, and waste reduction. The approach combines an in-depth review of existing data sources with extensive primary research. The outcome will be a transparent and replicable model capable of estimating waste generation, diversion rates, system costs, and greenhouse gas impacts, thereby providing Illinois with actionable insights and a robust evidence base for future policy decisions.

Cost and performance evaluated by county

Assessment of performance and cost of current system including access and equity and environmental assessment

Development of future recycling system under EPR and assessment of cost and benefits

Assessment of jobs and environmental benefits

Data Collection & Analysis

The project begins with a detailed secondary research phase. This involves reviewing existing waste management plans, statewide and county-level composition studies, EPA and MMAC reports, and national packaging datasets. From this, Eunomia will compile a statewide database that includes service levels, infrastructure, and municipal contacts. Complementing this desk research, primary data collection will include surveys and targeted interviews with municipalities, haulers, processing facilities, and industry associations. Waste characterization will also be conducted through field sampling and visual assessments, supported by quality assurance and control procedures.

Modeling & Projections

Collected data will be modeled using both bottom-up and top-down approaches. The bottom-up method will draw from surveys and interviews, while the top-down approach will adapt national datasets to reflect Illinois-specific conditions. Eunomia will use the EPA WARM model to establish a baseline of greenhouse gas emissions and develop scenarios for 2035 under 35%, 50%, and 65% recovery rates. To ensure transparency, all assumptions will be documented, and data robustness will be rated using a red/amber/green system.

Equity & Accessibility

Equity is a central pillar of this assessment. Eunomia is applying EJScreen and CEJST mapping tools to identify environmental justice communities and examine disparities in access to recycling and composting services. Special attention will be paid to siting impacts and gaps in education and outreach. To address inclusivity, multilingual needs will be assessed, with a focus on Spanish, Polish, and Chinese-speaking communities. A scientific survey of 600 Illinois residents will measure awareness levels, recycling behaviors, and educational needs across diverse populations. Eunomia is using Lake Research Partners for the polling.

Infrastructure & End Markets

Eunomia, with its sub-contractor, is compiling a detailed inventory of the state's waste management infrastructure, including MRFs, composting facilities, C&D operations, and special waste processors. Each facility and market pathway will be evaluated for stability and capacity, with risks and opportunities flagged using a red/amber/green rating system. This analysis will also identify emerging market opportunities and highlight challenges that could affect Illinois' ability to achieve its diversion and reduction goals.

Outputs & Deliverables

The final report will present a comprehensive yet accessible analysis. It will include an executive summary and county-level material generation profiles, describe end-of-life management pathways for each major material category, and quantify greenhouse gas emissions under baseline and future scenarios. It will also provide a needs assessment of infrastructure, costs, equity, and education efforts, alongside a transparent documentation of methodologies, assumptions, and limitations. Feedback from the Advisory Council will be integrated throughout the process to ensure that recommendations are realistic and actionable.

Colorado Needs Assessment (Complete)¹

In partnership with HDR, in 2023, we successfully completed the US's first packaging and paper products Needs Assessment in Colorado for Circular Action Alliance (CAA). This assessment was a pivotal step in the implementation of the Producer Responsibility Program for Statewide Recycling Act (House Bill 22-1355). The project's goal was to thoroughly evaluate Colorado's recycling infrastructure, identify service gaps, and develop future recycling scenarios that would enhance recycling rates and overall system efficiency statewide. The work to complete the needs assessment was delivered 50% by Eunomia and 50% by HDR.

Significant Advisory Board liaison and engagement to inform the development of three future recycling and reuse system scenarios

Modeling of low, medium and high ambition diversion scenarios

Significant primary data collected and verified through municipalities

Assessment of the impact of education on recycling rate improvements.

Approach to determine quantities

- **Data Collection:** We gathered over 100,000 data points through a robust data collection process that included 130 municipal surveys, 75 interviews, site tours with service providers, end markets, and key stakeholders, and extensive desktop research across 272 municipalities and 64 counties. This allowed us to understand Colorado's recycling and composting landscape in-depth.
- **Stakeholder Engagement:** Our team actively engaged key players throughout the State, including municipalities, residents, service providers, and recycling end markets. This was achieved through multiple webinars, public meetings, and participation in 13 Advisory Board sessions with the Colorado Department of Public

¹ The full report is accessible here: [Needs+Assessment+Full+Report+2025.pdf](#)

Health and Environment (CDPHE). These efforts ensured that feedback from a broad range of stakeholders was incorporated into our analysis.

- **Data Analysis and Scenario Development:** The data collected informed the creation of two key deliverables: a Minimum Recyclables List and an Additional Materials List. These lists were critical for designing three future recycling scenarios, which projected potential improvements in recycling rates while considering the performance, capital costs, and operational efficiencies for the years 2030 and 2035. The scenarios were designed to model different levels of system enhancements, ranging from modest improvements to more ambitious upgrades.

Figure from the final report showing project results for the likely trajectory of recycling rates in the State



The assessment uncovered significant disparities in recycling access for Coloradans, particularly between urban and rural areas. Currently, only **20% of households in rural regions** have access to curbside recycling services. However, under the proposed scenarios, the new statewide recycling program could expand access, providing curbside recycling to **55% of rural households** while improving drop-off collection services for the remaining areas.

The assessment presented **three future recycling service scenarios**, each based on the current system's costs, performance, and potential for improvement. These scenarios outlined the recycling and collection rates Colorado could achieve by **2030** and **2035** and the operating and capital costs required to meet those targets. A key finding was that **22% to 28%** of consumer packaging and paper products are currently being recycled in Colorado. However, under the new program, recycling rates have the potential to increase to **47%-60%** by **2035**, depending on the selected scenario.

Under the law, **CAA** must ensure that the new program provides equitable and convenient recycling services for all Coloradans, regardless of location, while driving significant improvements in recycling infrastructure and accessibility

Figure from the final report showing the map of current recycling facilities in Colorado

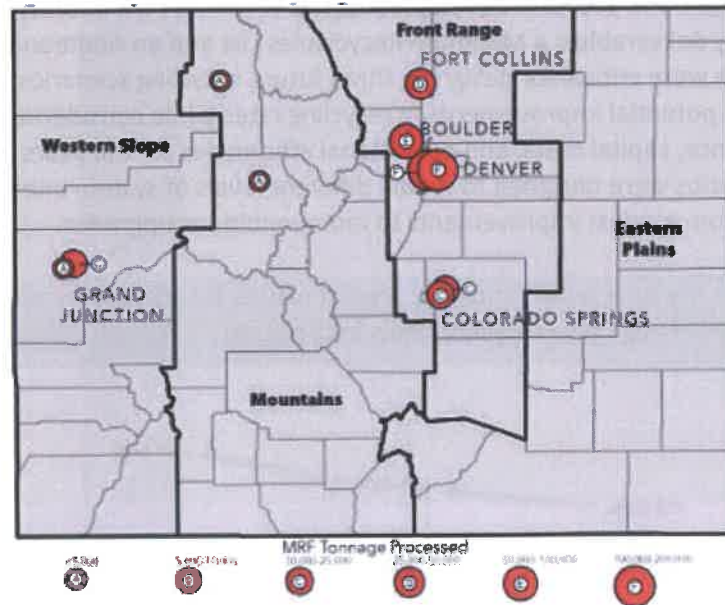
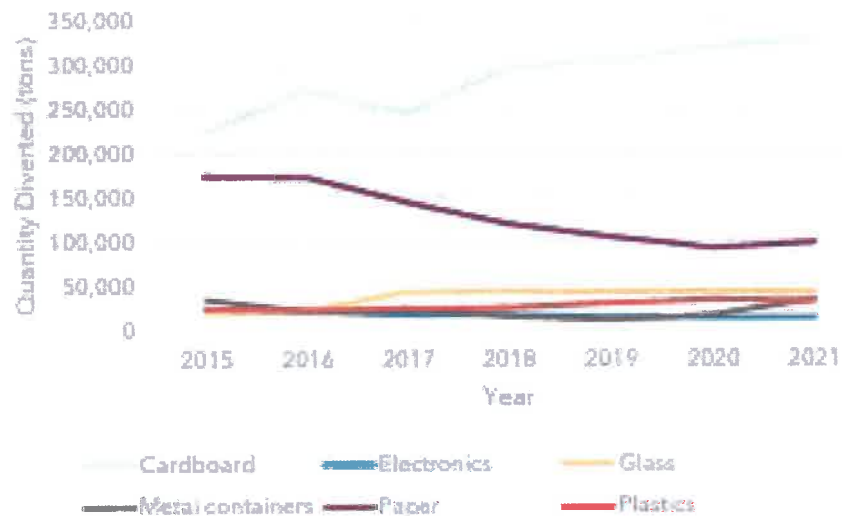


Figure from the final report showing the municipal solid waste diversion

Figure 1: MSW Diversion for Selected Materials



Recycling Programs Economic Impact Assessment – Alberta Recycling Management Authority (Complete)²

Overview

The Recycling Programs Economic Impact Assessment was undertaken by Eunomia Research & Consulting on behalf of the Alberta Recycling Management Authority (ARMA) to quantify and evaluate the economic contribution of Alberta's regulated recycling programs.

The study assessed the economic, employment, and value-added impacts generated by the province's four designated recycling programs – paint, tires, electronics, and used oil – and explored opportunities for system enhancement and future material expansion.

Eunomia's analysis provided ARMA with a robust evidence base to demonstrate how recycling contributes to Alberta's circular economy, supports local employment, and delivers industrial and environmental benefits across the recycling value chain.

Eunomia's Approach and Methodology

Eunomia applied a comprehensive economic impact assessment framework combining material flow analysis, employment intensity factors, and input-output modelling to estimate the direct, indirect, and induced economic effects of recycling activities in Alberta.

1. Data Collection and System Mapping

Eunomia began by mapping the full material flows for each of ARMA's designated programs from collection and transportation through to processing, remanufacturing, and end-use markets. Data were gathered from ARMA program records, processor reports, and stakeholder consultations supplemented by market research and previous Canadian and international benchmarks.

This mapping exercise established a baseline for:

- Tons collected and processed under each program;
- Material recovery efficiencies and end-market destinations;
- Employment levels and operating expenditures across the supply chain.

2. Economic Impact Modelling

Using the collected data, Eunomia applied an input-output (I/O) modelling approach to quantify the economic and employment effects.

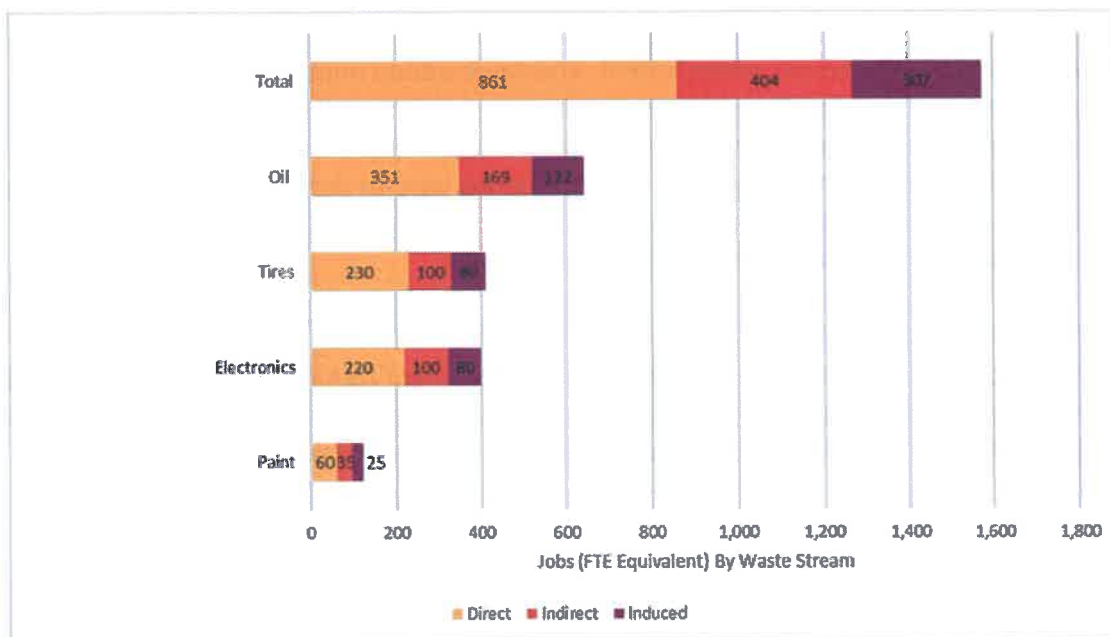
The analysis captured three tiers of impact:

- Direct impacts: employment and value added within collection, processing, and recycling activities.

² The full report is accessible here: [Study Recycling Programs Economic Impact Assessment ARMA.pdf](#)

- Indirect impacts: effects on suppliers and service providers supporting recycling operations.
- Induced impacts: broader economic activity generated through employee spending.

Figure E 1: Current FTE Jobs Created, by Program



Source: Eunomia calculations.

3. Employment Intensity and Gross Value Added (GVA)

Eunomia developed program-specific employment intensity factors (jobs per 1,000 tons processed) and GVA coefficients (economic output per ton), refined through stakeholder interviews and comparison with other Canadian stewardship systems. This enabled estimation of both total employment (FTEs) and total contribution to Alberta's GDP-equivalent (GVA) from each recycling stream.

4. Scenario and Sensitivity Analysis

The assessment incorporated sensitivity testing to explore how variations in tonnage, program expansion, or market changes would affect employment and economic outcomes. Potential expansion scenarios – such as including small appliances, textiles, or antifreeze containers – were analyzed to estimate additional jobs and value creation potential.

Key Findings from Eunomia's Analysis

- ARMA's programs collectively support approximately 1,570 full-time equivalent (FTE) jobs and contribute around \$180 million in Gross Value Added (GVA) annually to Alberta's economy.

- The majority of these benefits are localized within Alberta, with strong downstream processing and reuse industries providing direct regional economic gains.
- Tire and used oil programs generate the largest impacts due to their scale and established remanufacturing markets.
- For every direct recycling job, an additional 1.77 jobs are created through supply-chain and household spending effects.
- Alberta's recycling performance exceeds comparable Canadian jurisdictions, achieving higher recovery rates and lower average costs per ton.

Conclusion

Through its evidence-based economic modeling and scenario analysis, Eunomia provided ARMA with a strategic understanding of how recycling contributes to Alberta's economy and how program modernization can maximize these benefits.

The study demonstrated that recycling not only delivers environmental outcomes but also drives economic growth, innovation, and employment across the province.

Eunomia's methodology and recommendations continue to inform ARMA's strategic planning, and the development of future stewardship programs aligned with Alberta's transition to a circular economy.

Cost-Benefit Analysis of Compostable Plastics – TIPA, lead project manager for Compostable Coalition UK (Complete)

Eunomia conducted a cost-benefit analysis of different options to manage the circularity of compostable plastic packaging in the UK. They evaluated the feasibility of integrating compostable plastic packaging into existing and future waste management infrastructure. The analysis considered the financial and environmental impacts of compostable versus conventional plastic for certain types of packaging and explored policy interventions to support the adoption of compostable plastic packaging.

Figure 3-4: Change in Financial Costs for UK Local Authorities per Year, £ million

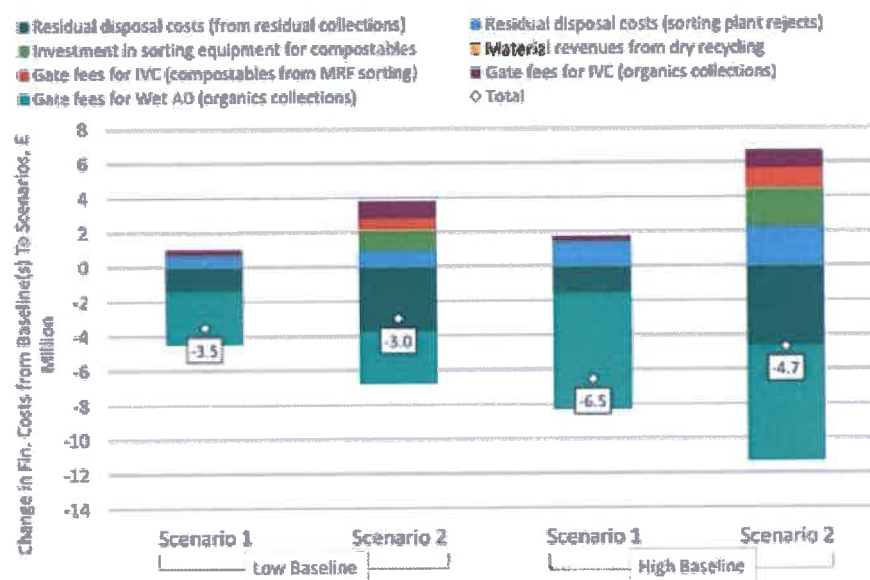
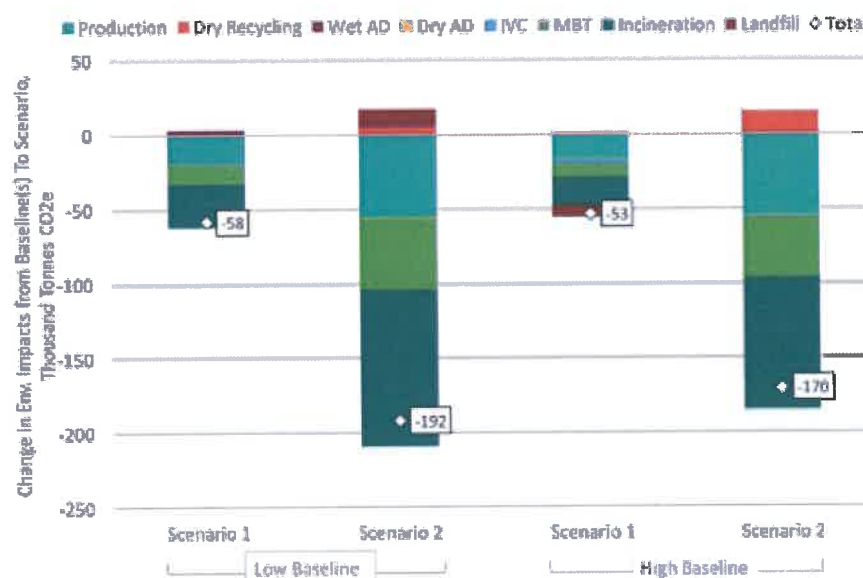


Figure 3-5: Change in GHG Emissions per Year, Thousand Tonnes CO₂e



Appendix B: Resumes

Scott Cassel

Chief Executive Officer and Founder

✉ scott@productstewardship.us 📞 617-513-3954



EMPLOYMENT

Product Stewardship Institute, Inc., Boston, MA

Executive Director/Founder (2000-present)

Founded the Product Stewardship Institute (PSI), a policy advocate and consulting nonprofit that pioneered product stewardship in the United States and has helped establish 141 extended producer responsibility (EPR) laws across 20 product categories in 33 states — the bedrock of the circular economy.

- Manages 8 employees, including policy, operations, and communications staff, as well as multiple consultants.
- Represents PSI through global product stewardship and EPR events, conferences, and webinars; oversees all PSI policy dialogues and projects and conveys government product stewardship interests at national and international conferences and meetings.
- Developed the widely acclaimed facilitation process that PSI uses for stakeholder engagement and consensus-building — a process that the U.S. Environmental Protection Agency supported and participated in, and which resulted in the nation's first industry-run, government-mandated paint stewardship program.
- Conducts product stewardship research and facilitates multi-stakeholder meetings; collaboratively develops solutions for more than 25 consumer products including packaging, paint, batteries, electronics, mattresses, and pharmaceuticals.
- Provides strategic advice to government agencies and industry related to product stewardship.
- Develops strategic plans, work plans, budgets, and internal and external policies for PSI.
- Developed the bylaws for the organization, which created a sustainable governance structure for over two decades; guided organization through nonprofit incorporation process and business policies; liaison to Board of Directors, Members, Partners, and Advisory Committee by which PSI's *Principles of Product Stewardship and Extended Producer Responsibility* and other policies were developed by consensus.
- Leads revenue generation, including maintaining government memberships and non-government partnerships; developing consulting project proposals and ensuring projects are high quality, on time, and on budget; oversees policy development, pilot programs, and marketing and communications.

Areas of Expertise

- Facilitation and Mediation
- Extended Producer Responsibility
- Product Stewardship
- Strategic Policy Development
- Solid and Hazardous Waste Management



productstewardship.us

Massachusetts Executive Office of Environmental Affairs, Boston, MA

Director of Waste Policy and Planning (1993-2000)

Developed legislative and policy recommendations on waste issues for Governor's environmental Secretariat. Worked with constituent groups, including environmental advocates, business interests, and local government agencies to achieve common goals and explore differences. Coordinated program implementation with interagency staff from six departments to reduce waste generation, increase recycling, and reduce the toxicity of the waste stream. Troubleshooter on all waste management issues for the state.

- Recommended policy framework and guided development of the 1994, 1995, 1997, and 2000 Solid Waste Master Plans, which increased reuse/recycling and limited solid waste disposal capacity. Included EPR as a key policy strategy – the first time ever in the U.S. for a state plan.
- Developed the Commonwealth's first Ten Point Recycling Plan and updated it annually.
- Successfully lobbied for, and oversaw, the \$15 million Clean Environment Fund used to implement over 70 recycling projects annually in the Commonwealth, including financial incentives to encourage municipal recycling and pay-as-you-throw.
- Implemented state policy on reducing mercury impacts from consumer products problem. Initiated and guided development and implementation of the state battery policy and Universal Waste Rule.
- Issued *Massachusetts Plan to Manage Hazardous Materials from Households and Small Businesses*, the Commonwealth's first, and guided its ongoing implementation.
- Coordinated \$60 million interagency project to dredge Boston Harbor; guided regulatory process through Massachusetts Environmental Policy Act (MEPA) Certification.
- Regularly interacted with news, radio, and television media, and developed press events and outreach materials.

Orchard Environmental Consultants, Brookline, MA

President (1991-1993)

Provided environmental consulting services to public and private clients, including technical communications, consensus building, and program implementation. Specialized in communicating scientific and technical information in the areas of solid and hazardous waste, water supply, and resource protection. Projects included:

- Co-facilitated development of strategic plan for the Casco Bay Estuary in Maine for U.S. EPA Region I.
- Wrote technical support documents for the U.S. Environmental Protection Agency (EPA) on sewage sludge incineration and landfilling.
- Developed one of the nation's first telephone answering manuals for consumer questions on how to reuse, recycle, and dispose of hazardous household products; for Westchester County, N.Y.

- Wrote a "what-you-can-do" guidebook for Brookline, Massachusetts, residents on ways to reduce health and environmental risks from radon and lead paint, and increase reuse and recycling.

Flexible Environmental Systems, Inc., Boston, MA

Director, Recycling and Permitting (1990-1991)

Directed environmental affairs and permitting for start-up recycling and solid waste management company.

Massachusetts Water Resources Authority, Budget Department, Capital Planning, Boston, MA

Assistant Manager (1988-1990)

Managed staff in writing planning reports including the MWRA's first *Long-Range Planning Overview* for an agency that provides wholesale water and sewer services to 3.1 million people and more than 5,500 large industrial users in 61 metropolitan Boston communities; served as authority-wide long-range planning liaison, including demographic data collection and analysis.

Hazardous Substances Management Program - Center for Technology, Policy, and Industrial Development, Massachusetts Institute Of Technology, Cambridge, MA

Project Leader (1986-1988)

Designed policy options and consensus-based approaches for states to implement hazardous household products management programs.

Consultant, Brookline, MA

(1985-1986)

Developed a study for the U.S. EPA on laboratory waste management in the United States. Researched the quality and mobility of municipal solid waste landfill leachate for the Massachusetts Department of Environmental Protection. Developed the state's first database for landfill leachate contaminants. Mapped wetlands to comply with regulations for potential development projects.

New Jersey Department of Environmental Protection, Trenton, NJ

Geologist (1984-1985)

Prepared ground water discharge permits under state NJPDES regulations to determine the environmental impact of corporate facilities and wastewater and water treatment plants; performed site inspections and reviewed technical data.

Pennsylvania Environmental Council, Philadelphia, PA

Information Specialist (1983-1984)

Developed and facilitated solid and hazardous waste seminars; researched federal and state solid and hazardous waste laws; answered statewide hotline on hazardous household products;

liaison with general public, government, and private sector; wrote fact sheets and other publications.

RELATED EXPERIENCE

Marine Debris Foundation, Washington, D.C.

Board of Directors (2022 – present)

Guide the Foundation's work on policy, infrastructure development, and innovative technologies to clean up and prevent pollution of our waterways and ocean.

Global Product Stewardship Council, Sydney, Australia

President of Board of Directors (2019), Founding Member of Board of Directors (2012-2019)

Guided development of international product stewardship association that promotes product stewardship and extended producer responsibility programs globally.

Massachusetts Institute of Technology, Cambridge, MA

Visiting Lecturer, Department of Urban Studies and Planning (fall semester, 1998)

Developed and taught practicum class on recycling that combined classroom theory with client-based projects. Students developed recycling plans for three Massachusetts cities and learned the political, social, economic, and technical factors involved in municipal recycling.

North American Hazardous Materials Management Association

Past President and Founding Board Member (Board Member: 1993-2002; President: 1996-2000)

This membership organization comprises the nation's top managers of programs that promote pollution prevention and reduce the toxicity of the municipal waste stream, while emphasizing the manufacture of less toxic consumer products.

Environmental Columnist

(1991-1994)

Covered a range of issues, including solid waste (recycling, composting), water pollution, household toxics, and public health. Syndication included: *Brookline Citizen*, *News Tribune*, *Watertown Sun*, *Newton Graphic*, *Needham Chronicle*, *Minuteman Chronicle*, and *Belmont Citizen Herald*.

Mediator, Quincy, MA

(1986-1988)

Mediated cases in Quincy District Court

EDUCATION

Master of City Planning (MCP) – Massachusetts Institute of Technology, Cambridge, MA (1988)

- Department of Urban Studies and Planning; Environmental Policy and Dispute Resolution
- Thesis: *Negotiating Better Superfund Settlements: Prospects and Protocols*

B.A., Geology and Environmental Studies – University of Pennsylvania, Philadelphia, PA (1983)

- Thesis: *Stream Morphology Changes Following the 1980 Eruption of Mount St. Helens*
- Minor: English

WRITING/RESEARCH AWARDS

-
- **Pioneer Institute, Better Government Competition; Honorable Mention, 1992.** Proposal for *Guidebook for Municipal Officials on Managing Hazardous Household Products*.
 - **Center for Public Resources, Legal Program Awards; 1st prize. Student Competition, 1989.** *Negotiating Better Superfund Settlements: Prospects and Protocols*. (\$2,500 prize)
 - **MIT Stanley Klein Prize for Scientific and Technical Writing; 1st and 2nd prizes, 1988.** *Beyond Collections: Managing Household Hazardous Products* (1st) and *Human Health Effects of Trichloroethylene Exposure* (2nd).

SELECT PUBLICATIONS

-
- ***Perspectives on Product Stewardship: Navigating an extended producer responsibility path to a circular economy.*** Book author. Bernan Press. 2023. First book on EPR in the U.S.
 - ***Handbook on Household Hazardous Waste. Chapter Seven.*** “Product Stewardship: Shared Responsibility for Managing HHW.” First and Second Editions (2008, 2018). Bernan Press.
 - **“Product Stewardship: Saving Municipalities Money, Better Environmental Outcomes,”** *Massachusetts Municipal Association* magazine. Spring 2019.
 - **“Assessing the ROI of EPR,”** co-author, *Resource Recycling Magazine*, April 2017.
 - **“Can Sustainable Beauty Come to Terms with Cosmetics and Personal Care Packaging Waste?”** adapted from an interview with Scott Cassel, *CosmeticsDesign.com*, April 2017.
 - **“Policy Best Practices that Support Harmonization: Summaries of Eleven Global EPR Programs,”** *PAC-NEXT Report*, March 2014.
 - **“Who is PSI? An Introduction to Facilitative Leadership,”** *Product Stewardship Institute blog*, March 2012.

SELECT PRESENTATIONS

-
- **Keynote Address and EPR Fundamentals Workshop, SWANA WASTECON, Boston, MA, September 2023**
 - **Organisation for Economic Co-operation and Development EPR Workshop, May 2023**

- **Sharps Stewardship Around the World**, DASTRI 10th Anniversary Conference, December 2022
- **Introduction to Product Stewardship and EPR**, BRING (state recycling association), Salem, OR, January 9, 2019.
- **The Promise and Practical Challenges for Extended Producer Responsibility**, SWANApalooza 2019. Boston, MA, February 2019.
- **Extended Producer Responsibility: Legislation and implementation in the US, EU and other countries**, Tuck School of Business, Dartmouth University, Topics: End of Life Vehicles and Waste Electronic and Electrical Equipment, along with stewardship organization governance issues, Hanover, New Hampshire, February 2019.
- **Extended Producer Responsibility in the US**, GreenCo Summit, Confederation of Indian Industry, June 27-29, 2018, Chennai, India.
- **Reducing Packaging and Printed Paper Waste Through Extended Producer Responsibility**, New York State Association for Reduction, Reuse, and Recycling, November 7, 2018, Cooperstown, NY.
- **Reducing Packaging and Printed Paper Waste Through Extended Producer Responsibility**, Presentation to NY SWANA Board, October 23, 2018.
- **View of International Adoption of Extended Producer Responsibility**, ISWA World Congress & SWANA's WASTECON, Baltimore, MD, September 2017.
- **Impacts of Packaging Waste**, Sustainable Cosmetics Summit, New York City, NY, May 2017.
- **Point-Counterpoint: Policy Pioneers in North America**, the Sustainable Packaging Coalition's Sustpack Conference: Finding Sustainable Solutions for Packaging, Scottsdale, AZ, April 2017.
- **Market-Driven Innovations and Solutions**, Breaking Down Plastic: South Carolina Aquarium Plastic Pollution Summit, Charleston, SC, March 2017.
- **Consumer Engagement and Emerging Tools**, Breaking Down Plastic: South Carolina Aquarium Plastic Pollution Summit, Charleston, SC, March 2017.
- **Developing the First Public-Private Paint Partnership**, Association for Conflict Resolution Environment & Public Policy Conference, Denver, CO, June 2015.
- **Extended Producer Responsibility: Insights from the United States**, Organisation for Economic Co-operation and Development, Global Forum on the Environment, Tokyo, Japan, June 2014.
- **Universal Concepts**, Global Product Stewardship Forum, Sydney Australia, November 2010.
- **Emerging Approaches and Products**, Global Product Stewardship Forum, Sydney Australia, November 2010.
- **The Lawrence Lecturer Presentation: Paint Product Stewardship**, WASTECON 2006, Charlotte, NC 2006

Darla Arians

Director of Policy and Programs



darla.arians@productstewardship.us



303-960-7390



Areas of Expertise

- Advisory Board Administration & Facilitation
- Stakeholder Engagement
- EPR program & policy research
- Recycling & Waste Reduction Programs
- Sustainable Materials Management



**PRODUCT
STEWARDSHIP
INSTITUTE**

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EMPLOYMENT

Product Stewardship Institute, Inc. – Boston, MA

Director of Policy & Programs (2025-Present)

- Design, coordinate, and facilitate multi-stakeholder workgroups, meetings, and dialogues focused on technical EPR topics
- Facilitate national multi-stakeholder packaging EPR harmonization task force
- Identify, design and implement key initiatives to establish and implement EPR laws
- Evaluate and improve EPR programs across all product areas
- Design and conduct research, analyze data, and write high-impact reports that support the development and implementation of EPR and product stewardship programs.
- Build capacity among governments, companies, and environmental groups to implement EPR policies and programs.
- Assist governments and other stakeholders to conduct voluntary product stewardship initiatives in states not ready for EPR.
- Appointed member, Hawai'i EV Battery Working Group (Act 209, 2025), advising the State Energy Office and Department of Health
- Represent PSI at conferences, webinars, and events, including delivering presentations.

Colorado Department of Public Health & Environment — Denver, CO

Producer Responsibility Program Manager (2022-2025)

- Statutory interpretation of HB22-1355 Producer Responsibility Program for Statewide Recycling
- Administer a 15-member advisory board of diverse stakeholders from across the U.S.
- Ensure advisory board met statutory obligations on schedule while incorporating equity and EJ considerations into consensus-driven recommendations
- Facilitate stakeholder engagement with over 400 stakeholders on a monthly basis
- Lead all-states EPR implementation harmonization working group
- Draft and present proposed regulations for promulgation to the Solid & Hazardous Waste Commission
- Serve as a technical expert for packaging EPR to stakeholders and interested parties
- Conduct research on various specific aspects of packaging EPR including material categories, data reporting, eco-modulation and more

OTHER EXPERIENCE

Boulder County Resource Conservation Division — Boulder, CO

Division Manager / Deputy Director (2010-2022)

- Administer the operating contracts for the Recycling Center (\$6mil) and other facilities (\$3mil)
- Direct development of waste characterization and data reporting systems to inform program planning and policy
- Liaise with legislative director to establish the annual local, state and federal legislative agenda pertaining to environmental topics such as circularity, EPR & materials management
- Led stakeholder process for Zero Waste Action Plan, ensuring inclusive participation and adoption of universal waste hauling ordinance
- Perform analyses and develop reports on sustainability programs data
- Analyze and manage performance to ensure financial and operational objectives
- Participate in and lead public, intra-departmental, departmental, and division meetings
- Responsible for overall program management and coordination that support recycling, composting, hazardous waste and other zero waste programs
- Coordinate and attend county board, committee and commission meetings
- Present recommendations on waste reduction and management planning issues
- Serve as authority for departmental regulations, policies and procedures
- Analyze and implement internal policies related to circularity and materials management
- Oversee licensing, enforcement, and compliance for Ordinance 2007-01
- Public engagement including presentations and providing professional tours
- Manage the budgets, contracts and personnel to accomplish the division's goals
- Section Chief for Emergency Support Function (ESF) 20, Debris Management at Office of Emergency Management

Baca Grande Water & Sanitation District – Crestone, CO

Deputy District Manager (2003-2008)

- Prepare, submit and monitor annual \$1.5 million budget
- Procure and administer contracts for facility maintenance, repair and equipment modifications
- Evaluate, recommend and procure bids for capital projects, including a new wastewater management facility and a wastewater transfer station
- Administer monthly District board meetings and present complex, technical and financial information for the board's consideration
- Track fixed assets of the District
- Provide leadership, direction and guidance to Accounting Technician and Utility Crews
- Ensure monthly and annual environmental regulatory compliance with CDPHE WQCD

- Create and submit annual Consumer Confidence Reports concerning water quality
- Develop and present recommendations on wastewater and water quality management planning issues
- Publish legal, educational and community notices for customers in newspaper
- Provide high level of written and verbal communication on a daily basis
- Wrote two successful (\$300,000) DOLA grants to expand services into underserved areas

Naropa University – Boulder, CO

Recycling & Waste Reduction Coordinator (2001–2003)

- Work intra-departmentally with executive staff and board on environmental policies
- Publish weekly articles about waste reduction and recycling to the Naropa Weekly
- Organize collection of recycling and compost from all three campus locations
- Collaborate with Eco-Cycle to develop and implement Naropa’s zero waste vision
- Organize staff and volunteers for outreach projects
- Coordinate public outreach events about recycling, clean energy, and zero waste

AWARDS

Outstanding Government Diversion Program – National Recycling Coalition (NRC)

Zero Waste Programs 2020

Sustainability and Innovation Award - National Association of Counties (NaCO)

Battery Campaign: Don’t Ignite, Recycle Right 2020

EPA Food Waste Reduction Award – EPA Region 8

Boulder County Jail food waste reduction education & compost service 2019

EDUCATION

Naropa University – Boulder, CO

B.A. in Environmental Studies: Building Sustainable Environments (Graduated 2009)

Southern Illinois University – Carbondale, Illinois

Geography: Environmental Planning (June 2000-July 2001)

American Institute of Commerce (A.I.C.) – Davenport, Iowa

A.A.S. in Court Reporting (Graduated November 1996)

Amanda Nicholson

Chief Operations Officer

✉ amanda@productstewardship.us ☎ 617-236-4833



EMPLOYMENT

Product Stewardship Institute, Inc. – Boston, MA

COO (2021 – Present)

Policy Facilitation and Development

- Project managed research studies and facilitation of in-person and virtual policy development dialogue meetings on batteries, tires, carpet, and packaging, including coordinating room setup, AV services, web meeting logistics, stakeholder communications, and meeting materials.
- For the Minnesota Pollution Control Agency, engaged stakeholders in small group meetings to understand their interests and gather input on policy options for recycling and reuse of solar panels. Evaluated policy options with an environmental justice lens and work with Eunomia to include equity considerations into economic modeling of policy options.
- Co-facilitate the Colorado packaging EPR Advisory Board; translate complex information into clear meeting materials that educate board members, foster productive discussion, and result in recommendations that reflect all key stakeholder interests.
- Mediated compliance solutions under the Connecticut gas cylinders EPR law, working with the producer responsibility, a producer, and the state oversight agency to seek resolution.
- Coordinated and facilitated product stewardship council (PSC) meetings in Illinois, New York, and Vermont; helped PSC's establish priorities, understand policy options, and pursue policy solutions.
- Directed a textiles reuse and recycling campaign for the New York ReClothe NY Coalition, operated by the New York State Association for Reduction, Reuse and Recycling in collaboration with the New York Product Stewardship Council.
- Conducted an evaluation of pharmaceuticals take-back pilot programs for Wisconsin Department of Natural Resources.

Areas of Expertise

- Facilitation & coordination
- Stakeholder engagement
- Policy research & analysis
- Project management
- Strategic communications
- Business administration
- Business development



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OTHER EXPERIENCE

Product Stewardship Institute, Inc. – Boston, MA

COO (2021 – Present); Finance & Operations Director (2016 – 2021); Business Manager (2011 – 2016)

Operations

- Direct day-to-day operations of a nonprofit, including financial and asset management; human resources; contracting and grant management; and liaising with payroll, benefits, accounting, auditing, and IT consultants.
- Develop strategic plans in collaboration with CEO and input from staff and Board.
- Direct the development of the annual budget and steward it through approval by the Finance Committee and Board of Directors.

- Oversee preparation of monthly financial statements and report to the Finance Committee.
- Oversee nonprofit's annual audit, working with business manager, accountant and auditor.
- Oversee distribution of weekly project budget updates; support project management.
- Ensure compliance with federal, state, and foundation grants.
- Negotiate annually the organization's indirect cost rate with the federal government.
- Business development/fundraising: grant writing, business proposals, and other fundraising.
- Represent the organization at conferences and public events.

Dig Publishing, LLC – Boston, MA

General Manager (2008-2011); Office Manager (2005-2008)

- Managed successful circulation audits by Verified Circulation Audit that allowed participation in Voice Media Group national advertising network and 10% top line revenue growth.
- Developed annual budget; issued financial reports; managed A/P, A/R; reduced bad debts 2%.
- Conducted annual health insurance analysis to minimize cost increases; in 2011 turned 9% increase into 4% savings while meeting the plan usage priorities of the staff.
- Successfully managed two audits, one by the Internal Revenue Service of the 401k plan and one by the Massachusetts Department of Labor and Workforce Development.
- Directed benefits administration; redesigned vacation policy to boost flexibility, encourage use, and reduce costs. Enhanced internal company communications with monthly newsletter.
- Trained sales/marketing interns on database management, lead generation, cold calling, sales support and collections.
- Managed the build-out of 9,000 square foot office on time and within budget. Worked with the architect, general contractor, and electrician to maximize natural light and save energy. Implemented improvements that reduced electric costs 63%.
- Analyzed office supply vendor options; changed vendors resulting in a 30% reduction in costs.

EDUCATION

Babson College, F.W. Olin Graduate School of Business – Wellesley, MA

Master of Business Administration (May 2011)

Smith College – Northampton, MA

Bachelor of Arts in American Studies and Italian Language and Literature (May 2001)

Key Skills – Facilitation and stakeholder engagement; policy research and analysis; project management; business development, grant and proposal writing; grant administration; strategic planning; business operations; financial analysis; benefits analysis

Software – Microsoft® Office Suite; Google Office Suite; Quickbooks™; Zoho Projects; WORK[etc]©; Clarizen; WordPress; YourMembership.com®; Wild Apricot; Hubspot; Constant Contact; Survey Gizmo; Survey Monkey; Google Analytics; FilemakerPro; DoubleClick for Publishers; Asana; Adobe Suite; Knack; Datawrapper; Canva; WordPress

Languages – Working knowledge of Italian and French; beginner Spanish; basic HTML

Jennifer Schultz

Senior Associate for Policy and Programs

 jennifer.schultz@productstewardship.us



EMPLOYMENT

Product Stewardship Institute, Inc. – Boston, MA

Senior Associate for Policy and Programs (July 2025 - Present)

- Lead and deliver complex EPR and product stewardship projects from concept through execution, ensuring on-time, on-budget, high-quality results aligned with PSI's mission.
- Design, facilitate, and drive consensus through multi-stakeholder workgroups and dialogue sessions on emerging EPR policy and technical issues.
- Conduct in-depth research and data analysis to produce strategic reports that inform program design and legislative action.
- Manage national government workgroups and maintain PSI's technical resource hubs to support successful EPR implementation by members.
- Provide expert guidance to businesses, nonprofits, and international partners through policy intelligence briefings and capacity-building support.
- Monitor and assess national legislative developments related to assigned products; evaluate policies and advocate for passage of priority bills.
- Cultivate and maintain strategic relationships with government agencies, industry leaders, and environmental organizations.
- Collaborate with PSI leadership to identify and pursue funding opportunities that sustain and expand PSI's impact.
- Represent PSI in public forums through compelling presentations at national conferences and virtual events.
- Stay at the forefront of U.S. and international EPR innovations, applying insights to PSI's policy development and advocacy efforts.

Areas of Expertise

- EPR, Product Stewardship
- Policy Analysis
- Stakeholder Engagement
- Legislative Research & Tracking
- Environmental Law & Regulation
- Recycling & Materials Management



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National Conference of State Legislatures – Denver, CO

Program Principal (June 2013 – April 2025)

- Provided bipartisan policy research, training and technical assistance to legislators and staff in all states, territories and commonwealths of the United States.
- Developed expertise in numerous state policy issues, including air quality, chemicals, disaster resilience, environmental health, land use, outdoor recreation, renewable energy, waste and recycling, water quality, wildlife; and issues impacting military-community relations and the well-being of service members, veterans, and families.
- Tracked and analyzed thousands of bills, monitored emerging trends, and maintained legislation databases.

- Conducted complex legislative research and translated findings into multiple formats, such as in-depth reports, 50-state charts, news articles, and direct correspondence with members and the media.
- Delivered informative and engaging presentations to diverse audiences, including testimony at legislative hearings.
- Secured substantial funding from corporate, nonprofit and government partners to support various projects.
- Worked with multiple funders to ensure timely completion of high quality assigned deliverables.

Massachusetts General Court – Boston, MA

Legal Intern, Joint Committee on Environment and Natural Resources (Spring 2012)

Defenders of Wildlife – Anchorage, AK

Legal Intern, Alaska Field Office (Summer 2011)

U.S. Department of the Interior – Newton, MA

Legal Intern, Office of the Solicitor (Spring 2011)

National Wildlife Federation – Montpelier, VT

Legal Intern, Northeast Regional Center (Summer 2010)

Sterne, Kessler, Goldstein & Fox P.L.L.C. – Washington, DC

Legal Library Intern (Summer–Fall 2008)

U.S. House of Representatives – Washington, DC

Intern, Office of Congressman Paul Kanjorski (PA-11) (Spring 2008)

EDUCATION

Suffolk University Law School – Boston, MA

Juris Doctor (David. J. Sargent Fellowship)

The George Washington University – Washington, DC

Bachelor of Arts, magna cum laude, International Affairs and Geography



Sarah Edwards
Director of
North
America
📍 New York

Project Director

- Over 25 years' experience in the waste and resource management sector.
- Waste Collection and processing operations
- Extended producer responsibility and deposit return system policy
- Recycled content legislation and guidance
- Cost benefit analysis

Expertise

- Extended Producer Responsibility
- Circular economy and circular business models
- Waste and recycling collection, treatment, and transfer
- Organics waste collection and processing
- North American deposit refund programs

Qualifications

- 2006: University of Kingston, Certificate in Business Management
- 2000: University of Bedfordshire, MSc Waste Management
- 1997: University of Sussex, BSc (Hons) Environmental Science

Employment History and Memberships

- Director of North America, Eunomia Research & Consulting Inc. (Aug 2015 – Present)
- Technology Delivery Specialist, EnviroServ Waste Management, South Africa (Oct 2013 – Mar 2015)
- Director, RWS Environmental Consultancy (Mar 2011 – Oct 2013)

Selected Project Experience

Packaging Waste & Cost Reduction Act - Preliminary Assessment and Needs Assessment (MPCA), September 2025 – December 2026: Eunomia was commissioned to conduct a preliminary assessment and a complete needs assessment and produce two reports summarizing the results, as required by the recently passed Packaging Waste and Cost Reduction Act (extended producer responsibility (EPR) law for packaging and paper products). The two assessments will gather critical information about packaging and paper product introduction, use and reuse, and management in Minnesota that will inform the development of the EPR program statewide.

- Sarah was Project Director

California Needs Assessment: Source Reduction and Material Design (CalRecycle), June 2025 – December 2025: Eunomia was commissioned to conduct an assessment to determine the actions and investments needed to achieve at minimum the source reduction goals outlined in PRC § 42057, to reduce both the number of plastic components and the weight of plastic used in plastic covered material, compared to the baseline year of 2023. Eunomia conducted infrastructure, cost, and impact analysis on different reuse and refill solutions and other sources reduction strategies for different packaging formats and applications.

Eunomia also carried out extensive stakeholder and community engagement and ensure that the findings accurately represent and consider rural, urban, and suburban and socio-economic perspectives of the state.

- Sarah was Project Director

California Needs Assessment: Collection, Processing, and End-Market (CalRecycle, Subcontractor to HF&F), May 2025 – December 2025: Eunomia was one of the consulting firms commissioned by the state of California (Calrecycle) to design and execute a study that assesses collection, processing, and end markets with respect to covered materials under SB 54 and determine the actions, investments, barriers, and timelines needed to update the recycling system in California. Eunomia leads the end markets assessment and Iris is responsible for collecting and analyzing data for paper and wood post-consumer packaging materials. This includes database development, stakeholder outreach, survey design, and data analysis.

- Sarah was End-Market Lead

Maryland EPR Needs Assessment (Maryland Department of Environment) August 2024 – February 2025: Eunomia was part of the team commissioned by the Maryland Department of the Environment to conduct a needs assessment for packaging EPR. This needs assessment supported the legislator and stakeholders in the 2025 legislative session to develop an EPR bill for the state. Eunomia led the quantitative assessment of Maryland's current recycling performance and the expected performance and cost of an EPR program in Maryland. The future EPR program was designed through workshops with Maryland Department of Environment staff and other stakeholders.

- Sarah was Project Director

Colorado Organics Study, Colorado Department of Public Health and Environment (CDPHE), December 2023 – September 2024: Eunomia was commissioned to perform a study on the state of organics waste management in Colorado. This analysis included recommendations for organic waste diversion targets, policies, and infrastructure development. Eunomia also examined the costs, feasibility, and benefits of organics diversion in Colorado.

- Sarah was Project Director

Colorado Needs Assessment, Circular Action Alliance, July 2023 – March 2024: Eunomia conducted a needs assessment for the State of Colorado's recycling system for packaging, paper products, and foodservice as established In the Producer Responsibility Program for Statewide Recycling Act. This work included research and modeling to develop an understanding of availability, capacity, performance, and gaps in recycling services; understanding of service costs, demographic factors and other variables to be considered in reimbursement rates of service providers; levels of contamination at MRFs and compost facilities; processing capacity of existing infrastructure; developing a proposed list of covered materials for inclusion in the minimum recyclable list; identifying opportunities for the use of innovative new technologies, and other analyses to support the newly established producer responsibility organization.

- On this project, Sarah acted as project director.

Recycling, Reuse, and Source Reduction Target Study and Community Input Process, Washington Department of Ecology, June 2023 – Present: Eunomia was commissioned by the Washington Department of Ecology to conduct a recycling, reuse, and source reduction targets study and carry out a community input process on the state's recycling system. Eunomia performed a landscape review of global recycling, reuse, and source reduction targets and modeled a suite of policy scenarios and estimated their diversion potential for consumer packaging and paper products. The study also included a statewide survey



**Pallavi
Madakasira**

Managing
Consultant

New York

Principal Consultant 2

- Led and shaped the deployment of ~\$800M in funds for clean energy and green jobs while ensuring environmental justice in New Jersey through the New Jersey Economic Development Authority (NJEDA).
- Incubated a circular battery recycling business at Solvay, forming a three-way partnership between Solvay, Veolia, and Renault, securing \$178M from the U.S. DOE.
- Advised C-level executives at Fortune500 firms on clean energy and clean tech strategies, building 45+ quantitative models to assess competitive positioning and market strategies.

Expertise

- Renewable Energy
- Battery recycling
- ESG strategy
- Clean Energy Policy
- Green Jobs
- Environmental Justice
- Circular business models
- Economic Development

Qualifications

- 2003-2005: M.S., Physics, University of Texas at Dallas

Employment History and Memberships

- VP, Strategic Marketing & Corporate Strategy – Phase Change Solutions (2022-2024)
- MD, Clean Energy – New Jersey Economic Development Authority (2020-2022)
- Director, Strategic Marketing – Solvay (2016-2020)
- Senior Analyst – Lux Research (2011-2016)
- External Advisory Board Member, New Jersey Institute of Technology Undergraduate Research & Innovation Program
- Executive Advisory Board Member, DNX Ventures
- Mentor, Female Leaders in Energy (USEA program)
- Author, Weekly climate newsletter [One Degree Apart](#)

Selected Project Experience

Designed, developed, and transformed a product portfolio >\$800M to create green jobs and enable just transition in NJ (2022-2024)

Pallavi was the MD for Clean Energy and instrumental in designing and deploying funds across a wide range of products to spur the clean energy market in NJ with an emphasis on ensuring environmental justice for historically overburdened communities.

- Led team of 15 to design and develop products to deploy \$200M in funds across clean transportation, energy efficiency, community solar and offshore wind to drive impact at the intersection of economic growth and environmental justice.

- Launched \$60M medium and heavy-duty vehicle voucher program – NJ ZIP, New Jersey Zero Emission Incentive Program - a first for NJ; program oversubscribed with >75% representation from overburdened communities and small businesses.
- Set up and launched a \$50M Seed Grant and Asset voucher program focused exclusively on technologies that reduce emissions and particulate matter; program now in its third year.
- Led the set-up of the State's first \$20M Wind Institute and wrote the tax credit rules for NJ.
- Led efforts to set-up the State's \$80M+ Green Bank; launched Commercial PACE (C-PACE) for the State and term financing products to accelerate pace of deployment in building energy efficiency.
- Led deployment of the federal \$300M SSBCI funds into the small business economy to finance clean energy projects in NJ.
- Laid NJ's groundwork and authored the state's proposal in the Northeast Regional Clean Hydrogen Hub proposal to the U.S. Department of Energy; NJ won the grant.

Incubated a circular battery recycling business for Solvay (2020-2022)

While at Solvay, incubated a three-way circular economy partnership with Solvay, Veolia, and Renault focused on recycling and extracting value metals from end-of-life electric vehicle batteries.

- This effort received \$178M from the U.S. DOE in 2022.
- Led and shaped the annual business strategic review (BSR) across the Mining, Additive Technologies, and Phosphorus Specialties business lines totaling >\$600 million in total sales globally growing @ 7% YoY.
- Developed product, life cycle and value chain assessments for 15+ products to determine value of product based on its sustainability benefits that resulted in >\$15 million in top-line sales in two years.
- Sustainability champion for the GBU and led Solvay's earliest efforts in ESG standards and reporting.
- Managed M&A pipeline by vetting and conducting due diligence for over 100 companies, globally.

Advised C-level executives of Fortune500 energy, electronics, infrastructure, and specialty chemical firms on product and market strategy (2011-2016)

- Conducted primary/secondary research on emerging companies and technologies with an emphasis on clean energy and clean tech.
- Built 45+ sophisticated quantitative models to assess demand, supply, and pricing hypothesis to determine competitive positioning of 1,200+ companies globally.
- Guided \$30B+ conglomerate to diversify into thermal materials; conducted market research and developed revenue model.
- Down-selected top 3 prospective embedded sensor partners from 125+ prospects for market entry for \$65B+ chemicals firm.
- Published 3 quarterly market reports per year. Wrote 4 weekly company specific reports. Hosted 8 webinars on key topics (400+ global attendees each). Served as keynote speaker at 15+ leading global conferences and widely quoted analyst in WSJ, Fortune, and Forbes.



Caitlin Kelly

🏠 New York
City

Consultant

- 10+ years of experience designing, funding, implementing and evaluating environmental projects
- Excels at distilling complex technical results into key priorities that resonate locally across diverse audiences
- Skilled in stakeholder facilitation and outreach, working with local government representatives in seven different countries to support research uptake and policy design

Qualifications

- 2020: Sustainable Business Strategy Certificate, Harvard Business School Online
- 2016-2017: MSc in Conservation Biology, University of Cape Town
- 2005-2009: BA in Political Science, University of Virginia

Selected Project Experience

Built a carbon project and plastic recycling crediting program to spearhead South Pole's entry into a new regional market (2021-2024)

Assuming full responsibility for business development in the region, I built a new carbon program from the ground up sourcing new partnerships for plastic crediting and carbon projects including ICROA-endorsed methodologies for plastics, biochar, methane, forestry, agriculture, blue carbon and sustainable technologies. I developed and implemented a five-year sourcing strategy, instituted strict project criteria, and forged a network of strategic partnerships across the industry from private landowners and public agencies to corporations, and native tribes.

Helped strengthen the community of practice around climate-focused conservation for the IUCN Climate Change Specialist Group (CCSG) (2018-2022)

Helped build and strengthen a global network of climate researchers working to bridge knowledge gaps, build collaborations, and strengthen the community of practice around climate-focused conservation as the CCSG's first Programme Officer.

Led and contributed to broad-scale national and international assessments as a Technical Analyst in Stellenbosch University's Global Change Biology Lab (2018-2020)

Analyzed and synthesized environmental impacts on South African biodiversity for the National Biodiversity Assessment. Led and facilitated outreach workshops for government officials, policy-makers, park rangers, community members and other stakeholders in countries across sub-Saharan Africa to disseminate recommendations for strengthening the climate resilience of national park networks.

Microplastic Incidence in the South Atlantic (2016)

Conducted ship-based sea sampling at regular intervals for microplastics, water conductivity, temperature, depth, and quality during a six-week sea voyage from 33° to 50°S in the South Atlantic as part of the overwintering research relief trip to Gough Island.



Caitlin
Harrington-
Smith
Senior
Consultant
New York

Project Manager

- Over 8 years' experience developing and supporting circular economy initiatives and programming.
- Strong qualitative research, analysis and report writing skills.
- Excellent problem solving and communication.
- Skilled in data and information presentation with diagrams and infographics.

Expertise

- Textiles circularity
- Packaging and paper products circularity
- Reuse systems
- Carbon foot-printing and LCA
- Public & private sector project management

Qualifications

- 2019-2022: M.S., Sustainability Management, Columbia University
- 2012-2016: B.A., Economics, Barnard College

Employment History and Memberships

- Environmental Consultant, Eunomia Research & Consulting (July 2020 - Present)
- Project Assistant, Think Reuse, EPA-funded grant project (2018-2020)
- Researcher, Sustainability Department, Barnard College (2018-2019)
- Operations Director, Fixup LLC, circular economy social enterprise (2016-2019)

Selected Project Experience

Packaging Waste & Cost Reduction Act - Preliminary Assessment and Needs Assessment (MPCA), September 2025 – December 2026: Eunomia was commissioned to conduct a preliminary assessment and a complete needs assessment and produce two reports summarizing the results, as required by the recently passed Packaging Waste and Cost Reduction Act (extended producer responsibility (EPR) law for packaging and paper products). The two assessments will gather critical information about packaging and paper product introduction, use and reuse, and management in Minnesota that will inform the development of the EPR program statewide. On this project, Caitlin:

- Acted as Research Lead

Compost Infrastructure and End Markets Study, Oregon Department of Environmental Quality, 2025 – March 2026: Eunomia was commissioned to develop a compost infrastructure and end markets study for the state of Oregon. The study will assess Oregon's current food waste recovery system, identify opportunities for infrastructure and market growth, and provide recommendations to support the Oregon Department of Environmental Quality's (DEQ) goals for sustainable food waste management. On this project, Caitlin:

- Acted as project manager.

Indiana State Materials Management Plan, Indiana Department of Environmental Management, 2024- Present: Eunomia was commissioned to develop a State Materials Management Plan focused on pre- and post-consumer recyclables, organics, e-waste, textiles, C&D waste, emerging waste streams, and other materials traditionally considered trash and landfilled. The objective of this project is to develop plans to advance pre- and post-consumer materials management and increase disposal opportunities, while enabling Indiana to reach its goal of a 50% recycling rate. On this project, Caitlin:

- Acted as project manager.

Litter Audit Support and Analysis, Continuous Improvement Fund, 2024 - 2025: The Continuous Improvement Fund (CIF), on behalf of the Municipality Resource Recovery and Research Collaborative (M3RC), commissioned Eunomia to provide reliable province-wide data on municipal litter quantities, composition and collection costs for Ontario. For this project, litter is defined as all loose waste materials and does not include illegally dumped waste, litter found in stormwater/sewer systems or litter on private, institutional, provincial and federal government properties, and the associated management costs. On this project, Caitlin:

- Acted as project manager.

Recycling Access, Costs and Equity Across Washington, King County, 2024 - 2025: Eunomia was commissioned to produce maps of residential recycling access, costs, and equity concerns across Washington State. As part of this analysis, Eunomia reviewed and updated data about recycling services offered to single and multi-family residences and examined where environmental health disparities related to the current residential recycling system. On this project, Caitlin:

- Acted as project manager.

Study Regarding Diversion of Organic Materials from Landfills, Colorado Department of Public Health and Environment, 2023 – 2024: Eunomia was commissioned to perform a study on the state of organics waste management in Colorado. This analysis included recommendations for organic waste diversion targets, policies, and infrastructure development. Eunomia also examined the costs, feasibility, and benefits of organics diversion in Colorado. This legislated work culminated in a report and a toolkit to help Colorado stakeholders assess and implement infrastructure development to better manage organic waste. On this project, Caitlin:

- Acted as project manager.

Assessment of the Impact of EPR on Municipal Rates in Washington, Northwest Product Stewardship Council including King County – Subcontractor to Cascadia Consulting, 2021: Eunomia was commissioned to assess what the rate impact would be from the introduction of extended producer responsibility for packaging and paper products for a number of Washington municipalities including the City of Seattle, Spokane and Tacoma. The assessment included working with municipalities to understand how services are carried and the relative capital and operating costs and then assessing the proportion that could be attributed to the collection and processing of packaging and paper products which be covered under EPR, and which could be deducted from municipal utility rates. On this project, Caitlin:

- Acted as project manager.

Extended Producer Responsibility and Container Deposit System Cost and Benefit Analysis for Washington State, King County, USA, 2020: Eunomia was commissioned to model the current waste flows including those for plastics in Washington State as well as the costs of the current collection,

processing, and disposal system. The team modelled three alternative scenarios under different forms for extended producer responsibility to determine the cost, environmental and social impacts and benefits. On this project, Caitlin:

- Assisted with waste and recycling data gathering and processing.



John
Carhart
Senior
Consultant
New York

Modeler - Collections

- Over 5 years' experience within the waste and recycling industry
- EPR, DRS and waste flow modeling expertise
- Modeling in data poor environments
- Ability to compile data from various sources into one comprehensive dataset
- Econometric experience developing equations that warrant causal interpretations
- Experience handling and analyzing large datasets
- Statistical and data manipulation software experience including STATA and R

Expertise

- | | | |
|-----------------------------|---------------------------------|----------------------------|
| • Econometric data analysis | • Policy and technical research | • DRS Modeling |
| • GIS and spatial analysis | • EPR modeling | • Statistical software |
| | | • Stakeholder consultation |

Qualifications

- 2015 - 2019: Colby College BA, Economics (Hons) and Environmental Policy

Employment History and Memberships

- Environmental Consultant, Eunomia Research & Consulting Ltd (June 2019 – Present)
- Investment Associate, South Street Advisors LLC., (June 2018 – August 2018)

Selected Project Experience

Indiana Statewide Materials Management Plan, (Indiana Department of the Environment), February 2025 – Ongoing: The U.S. Environmental Protection Agency (EPA) awarded IDEM a Solid Waste Infrastructure for Recycling (SWIFR) State and Territory Grant to develop a statewide materials management plan, focusing on waste reduction. In addition, IDEM will provide pass-through funding for local communities and county solid waste management districts to develop local materials management plans based on guidance included in the Indiana Materials Management Plan.

- John is the modeling lead on this project

California EPR Needs Assessment, (CalRecycle), January 2025 – Ongoing: CalRecycle commissioned Eunomia under a subcontract with HF&H to conduct a needs assessment in preparation of Extended Producer Responsibility (EPR) for packaging in California. The needs assessment was required under Senate Bill 54 (SB54). Eunomia is tasked with investigating the current and potential future state of end markets for material in California. The task includes quantifying the tonnage of material recycled in and out of state.

- John is the modeling lead for this project

Multi-State Program Plan Development (Circular Action Alliance), August 2024-January 2025: The Purpose of this work was to develop the methods, approaches and standards for the subject areas outlined above

for CAA, so that these can be incorporated into the development of the Program Plans for the States of California, Colorado, and Oregon, addressing legislative Program Plan requirements related to tracking source reduction efforts of producers, material options, post-consumer recycled content, and reuse and refill.

- John provided technical support for the source reduction goals of the program plans

Maryland Needs Assessment (Maryland Department of the Environment), August 2024 - February 2025:

Eunomia was part of the team commissioned by the Maryland Department of the Environment to conduct a needs assessment for packaging EPR. This needs assessment supported the legislator and stakeholders in the 2025 legislative session to develop an EPR bill for the state. Eunomia led the quantitative assessment of Maryland's current recycling performance and the expected performance and cost of an EPR program in Maryland. The future EPR program was designed through workshops with MDE staff and other stakeholders.

- John was the modeling lead on this project

Needs Assessment for Colorado EPR (Circular Action Alliance), July 2023 – March 2024: Colorado was one of the first states in the U.S. to pass Extended Producer Responsibility legislation for packaging and paper products. As part of this legislation the state selected Circular Action Alliance (CAA) to be the producer responsibility organization. CAA selected HDR and Eunomia to conduct a needs assessment to evaluate the current state of recycling in Colorado and the potential cost of meeting different recycling targets based on different systems. This project included extensive research of every municipality in the state, surveys sent to every municipality and county in the state, interviews with end markets, MRFs, and haulers to learn about their systems and costs, and evaluating what materials could be collected under EPR in the state. This all fed into a detailed modeling exercise to estimate the operating and capital costs of a new recycling system.

- John was part of the modeling support team and delivered the task of the needs assessment related to recycling end markets

Recycling, Reuse, and Source Reduction Target Study and Community Input Process (Washington Department of Ecology), August – December 2023: Eunomia was commissioned to conduct a recycling, reuse, and source reduction targets study and carry out a community input process on the state's recycling system. Eunomia performed a landscape review of global recycling, reuse, and source reduction targets and modeled a suite of policy scenarios and estimated their diversion potential for consumer packaging and paper products. The study also included a statewide survey and in person engagement to better understand Washington residents' concerns and feedback on their state's recycling system. Eunomia submitted the findings to the Washington State house of representatives and the senate.

- John was the modeling lead, and presented the modelled targets to the Washington State Legislature

50 States of Recycling Refresh, Ball Packaging. December 2022 – December 2023: Eunomia was commissioned to refresh its state by state recycling rate of various packaging materials. The project included compiling and standardizing data from every state. John was the lead modeler on the project, working on the main model, refining assumptions and creating outputs. John also gave technical updates and results presentations to clients on a regular basis.



Yashwini Selvaraj

New York City

Junior Consultant

- Graduate Policy Consultant – Harris Policy Labs, University of Chicago
- Data and Statistics Intern – UN Women
- Research Assistant (RA) - COVID-19 Border Accountability Project
- Project Lead Public-Private Partnership – ISAK Project Nepal

Qualifications

- Master of Public Policy Analysis, University of Chicago, June 2024
- Specialisations – Data Analytics, International Development and Policy, Markets and Regulation
- Bachelor of Arts – Intercultural Communication, International Development and Political Economy (Hons), March 2022

Selected Project Experience

Decarbonizing Plastics in the Healthcare Sector (Confidential Client), March –July 2025

Project Support

- Yashwini provided research support to help understand the economic and environmental implications associated with different strategies to decarbonize plastics in the healthcare sector. The final deliverables include a concise synthesis paper that summarizes the key findings and a clear roadmap with a set of evidence-based recommendations.

Oregon DEQ: Compost Infrastructure and Market Study, May– Present

Modelling Support

- The project aims to better understand current capabilities to manage food waste and potential composting infrastructure needed in the future to manage increasing volumes. Yashwini supports survey implementation and will assist with data modelling once the survey results are available

CalRecycle: SB54 Needs Assessment Source Reduction Material Design, June – Present

Modelling Support

- The project aims to support the implementation of the Plastic Pollution Prevention and Packaging Producer Responsibility Act, Senate Bill 54 - which establishes a new EPR program to manage covered materials (i.e. single-use plastic packaging and food service ware) in California. Yashwini will be providing modelling support for the project.

Illinois Environmental Protection Agency : Statewide Materials Management Needs Assessment, June – Present

Research Support

- The project serves to develop a comprehensive Final Report, using present statewide and country-level data on material generation, handling and GHG reductions under different recovery scenarios. Yashwini helps with implementing surveys and will support data modelling

