eunomia

Impact Report

January 2023 - March 2024

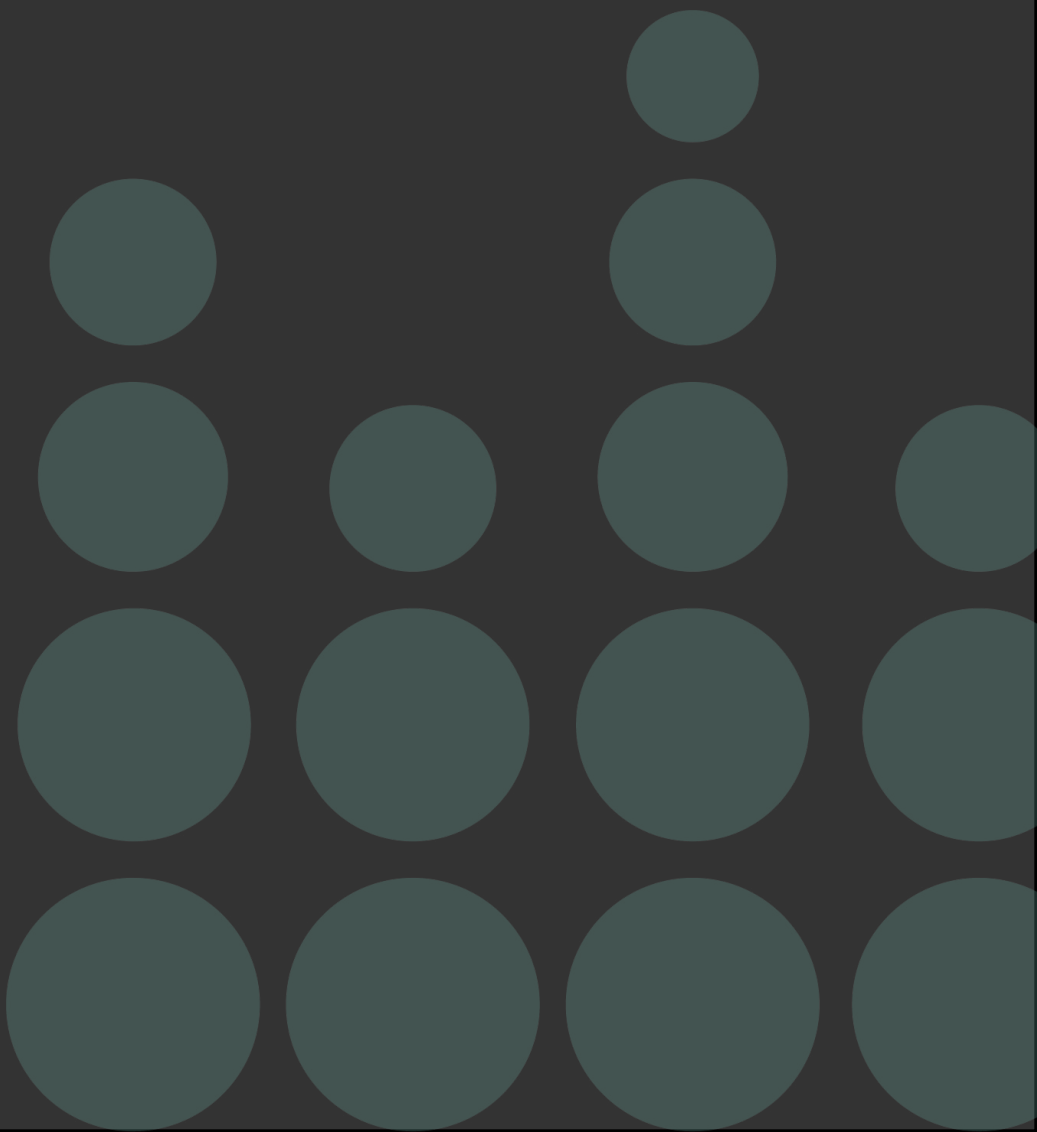


Table of Contents

Welcome

Jonquil Hackenberg
CEO of Eunomia Research & Consulting

Hi, I'm Jonquil, Eunomia's inaugural CEO, who joined in 2023 to catapult Eunomia's 23 years of deep-seated expertise in the socio-environmental sector to greater heights and with a mission to make the changes needed to set it on the right trajectory for its next chapter, for its co-founder and current Chair, Joe Papaneschi.

This report is a snapshot of all that Eunomia has driven this past year, both externally and internally, resulting in global B-Corp certification across our company from our headquarters in Bristol in the UK, to London, Brooklyn, Brussels, and Auckland.

We invite you to gain a sense of the work that we undertake and of the humans we employ, all around the theme of Unwasted.

What makes us unique? We provide unbiased, science-based, and policy-rich research and consulting services, globally. The nexus of the circular, carbon, and natural economies is where we excel.

We specialise in **sustainable material use and reuse, recycling, and waste management strategies,** assisting businesses, governments, and NGOs from **policy evaluation to product responsibility.**

Aiming for a Net Zero future, we **measure and reduce carbon footprints,** guide through carbon offset markets, and **ensure alignment with global sustainability standards** to tackle greenwashing and **ensure verifiable progress.**

We offer solutions for **biodiversity enhancement, sustainable land use, and nature-based investment strategies,** focusing on ecological balance and economic viability.

To be able to do all of this with high quality output, we need brilliance. With 90% of our consulting staff holding masters or PhDs in everything from material science to behavioural science, we are called upon for no-nonsense answers to complex Net Zero, sustainability, ESG – whatever you want to call it – questions.

I also believe we all need to model sustainable business if we are to advise on it, so I'm proud to say over the course of this year we introduced the nine-day fortnight with every other Friday off; doubled our commitment to volunteering hours; and created a 50:50 female-male leadership team across a business showcasing 62% women. We also doubled down on our North Star and launched a new website to provide clarity to all who engage with us. This has resulted in increased productivity; better retention; higher footfall in terms of signed clients; and greater profitability.

Although it's early days, we're pleased with the formula thus far. Our team is unfailingly passionate about the future of our planet and society. That's why, every day, we strive to do work that leaves the world in a better place for the next generation.

So, read forth; pick up the phone and call upon us if you wish to partner in any capacity. Climate change and associated adaptation are bigger than the sum of any single one of us.

Together we're stronger. Together we can make true impact. And together, we can drive the power of Unwasted.

Our Mission

At Eunomia, we are social-environmental problem solvers and researchers with a difference.

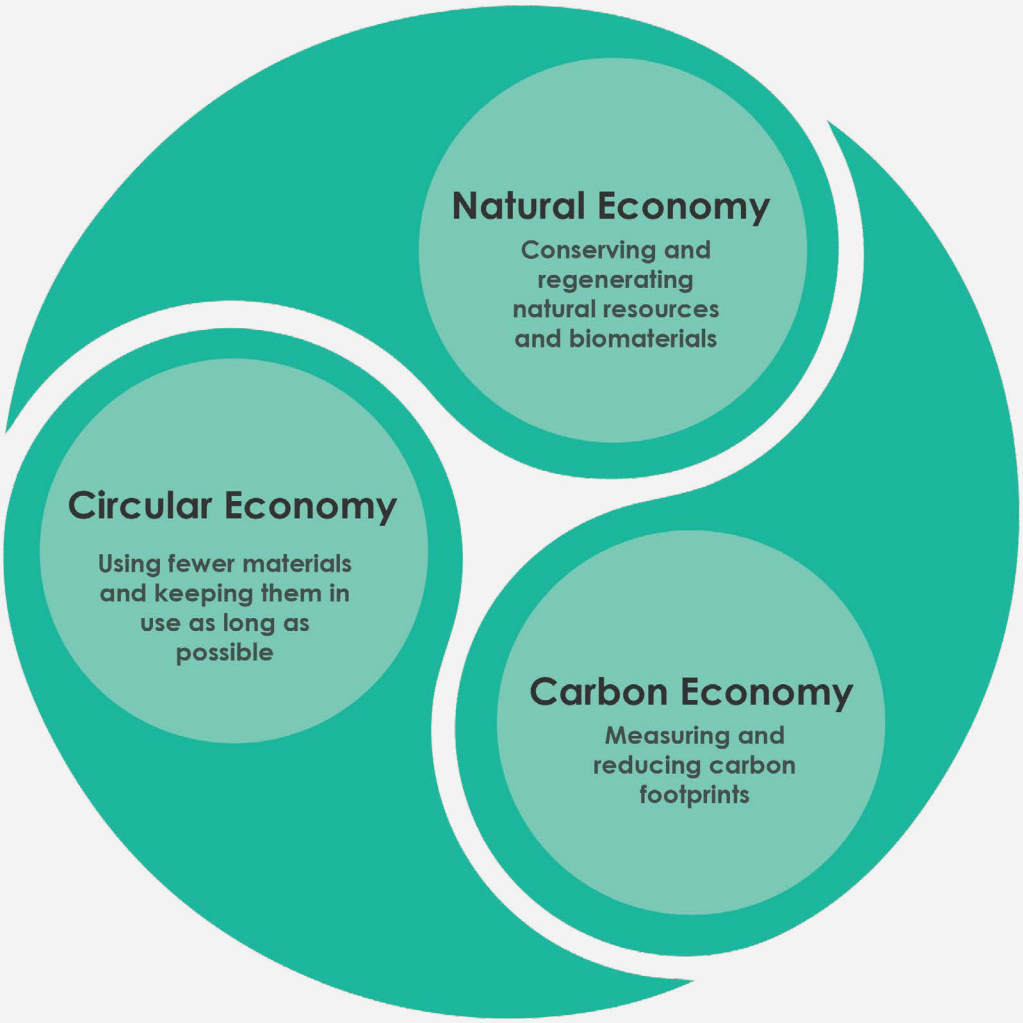
We combine real-world consulting experience and deep technical knowledge to proactively shape policy and develop pragmatic, science-led solutions for a sustainable future.

Our mission is to drive positive, regenerative change as we tackle the interlinked issues of climate disruption, pollution, and biodiversity loss that threaten the health of the ecosystems and natural resources which sustain us.

Eunomia's role is to challenge the status quo, ask the right questions, and get to the heart of the issues impacting our clients' businesses and our society.

We design innovative, evidence-based solutions to help society transition to a regenerative and circular economy – one in which waste is minimised, consumption is sustainable, and impact on nature is reduced.

We deliver policy insights and solutions for the circular, carbon, and natural economies, all informed by our guiding principle: the power of Unwasted.



Our Values

Maximise our impact

We are passionate about changing how the world works and contributing to the restoration and regeneration of the planet.

Provide solutions

We solve problems and challenge the status quo through evidence-based research and innovation, within a culture centred on critical thinking and continuous learning.

Walk the talk

We demonstrate the behaviour we hope to see in others through our own actions.

Behave with integrity and respect

We acknowledge and respect the diversity of views and perspectives that we encounter, within a culture that encourages speaking truth to power.

Be actively inclusive

We value everyone's contributions and strive to better reflect the diversity of human experience.

Our Timeline

eunomia

2030
Achieve net zero carbon emissions

2028
Reduce waste generated in Bristol office by 25%

2026
Achieve 95% average annual recycling rate in Bristol office

2026
Reduce absolute water use in Bristol office by 10%

2026
Achieve B Corp re-certification score of 100

2025
Become a Disability Confident Committed organisation

Q2 24/25
Revisit carbon fund strategy

Q2, 24/25
Update carbon reduction plan

Q1, 24/25
Launch EDI priorities and action plan

Q1, 24/25
Launch charity partnerships

Dec 2023
B Corp certification achieved

Oct 2023
EDI committee re-formed

Sept 2023
North Star guiding principle embedded

May 2023
Carbon reduction plan established

2022
Volunteering policy introduced

2021
SBTi targets set

2018
US office opens; expansion of work in North America

2008
Carbon fund established

2001
Eunomia's journey begins

Purpose beyond Profit

In December 2023, Eunomia became one of the first sustainability consultancies to receive global B Corp™ certification – demonstrating that people and planet matter to us, not just profit.

Our B Corp certification shows that we meet high standards of verified social and environmental performance across five areas: Governance, Workers, Community, Environment, and Customers. The rigorous certification process required evidence of our responsible practices regarding energy supplies, waste and water use, worker compensation, diversity, and corporate transparency. We have legally embedded our commitment to purpose beyond profit in our company articles.

As a B Corp, Eunomia has joined a growing group of more than 7,000 companies worldwide that are reinventing business to use it as a force for positive change – including The Guardian, innocent, The Body Shop, and organic food pioneers Abel & Cole.

We have also been members of the United Nations Global Compact since 2020. This expresses our commitment to making its Ten Principles part of our strategy, culture, and daily operations and engaging in collaborative projects to advance the Sustainable Development Goals.

Environmental Impact

We work steadily to keep direct environmental impacts from our operations as small as possible, as we've done since our founding 23 years ago.

Eunomia has signed up to the Science Based Targets initiative, which defines a clear pathway for reducing our greenhouse gas emissions and helping limit global warming to 1.5°C. Our Carbon Reduction Plan commits us to reaching Net Zero emissions by 2030.

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

For business travel, we follow a travel hierarchy that favours active modes like walking and cycling, followed by public transport, over car and air travel wherever possible. We operate a flight checklist to help track business travel and make sure any flights we take are absolutely necessary.

Eunomia embeds sustainability into our procurement practices, prioritising durability, reusability, recyclability, and energy efficiency in what we buy. This means we assess the carbon footprint of different laptop, monitor, and headphone models before deciding what to purchase. We buy refurbished IT and office equipment where possible, and we encourage staff to use their working from home equipment allowance to do the same.

We are in the process of developing a new sustainability strategy along with revised targets for water use, waste reduction, and recycling. We'll report on how we did against these in our next impact report.

Social Impact

Our team's passion, talent, and dedication are vital to our success. They work hard to drive positive change in the world, and to do this they need a working environment in which they feel content, supported, and valued.

In 2023, to promote better work-life balance, Eunomia introduced a nine-day fortnight working pattern with Fixed Fridays: the company closes on alternate Fridays, giving all staff an extra day off every two weeks. We also have two days extra leave over the Christmas period, in addition to annual leave. Everyone receives a monthly wellbeing allowance to spend on hobbies, days out, memberships, and outdoor activities that help us feel happier and healthier.

Our Flexible Working Policy allows hybrid office-home working patterns and, under our Work from Anywhere Policy, introduced in 2023, colleagues can work from any place in the world for up to four weeks each year.

In the belief that having fun brings out people's ingenuity, Eunomia offers the team frequent opportunities to connect and relax – from office breakfasts, pizza parties, and game nights to the annual weekend away.

Promoting Equality, Diversity, and Inclusion (EDI) is a strategic priority for us. Our EDI Committee was re-launched in 2023, and it now includes newer staff members to represent different geographies, backgrounds, and areas of the business.

In 2023, under the leadership of our first female CEO, Jonquil Hackenberg, Eunomia's leadership team was reconfigured to achieve a 50:50 gender mix. Across the entire team, women make up 62% of our staff.

Working with Human Resources (HR), the EDI Committee has reviewed our recruitment practices to reduce any unconscious bias and check that job descriptions are as inclusive as possible. They are also assessing company policies to make sure we provide equitable and inclusive support for all staff – for example, through our Parental Leave Policy, Menopause Policy, and Transgender Policy.

We regularly review and report on our Gender Pay Gap figures and conduct Fairness Factor background checks during annual salary reviews. Eunomia is a Living Wage Employer.

Community Impact

We are committed to bringing about positive change and supporting the economic and social well-being of the communities we serve.

Opportunities to volunteer enable Eunomia's staff to live up to our values and help a charity or good cause that is meaningful to them. The company provides two volunteering days per year for each employee, matched to selected charities where we can have greatest impact — from both topic and geographical perspectives — centred on the circular, natural, and carbon economies.

We also encourage staff to match those days from their own time — as part of simply buying into being a Eunomian — to give back and volunteer around socio-economic and environmental impact. Altogether this equates to 4,000 hours each year across the company.

Along with company-organised volunteer activities like The Great Eunomia Litter Pick, staff have used their volunteering hours to teach climate change lessons in local primary schools, plant trees, and help out at community-owned and fully sustainable farms.

> A small group of us went out for an hour to pick litter after another social. It was a good hour spent and we got a few thank yous as well which always feels nice. Even though it was only a small action, it still felt that, together, we made a difference to our local community.
>
> Michael Kirk-Smith, Senior Consultant

> I wanted to do something that felt impactful to me, involved talking to people about the environment, and gave me the opportunity to develop some new skills. I taught two lots of Year 5 classes (children aged 9 and 10) and found the experience highly rewarding. The children were very inquisitive, which was demonstrated through some wacky yet rather thoughtful questions.
>
> Isabelle Williamson, Consultant

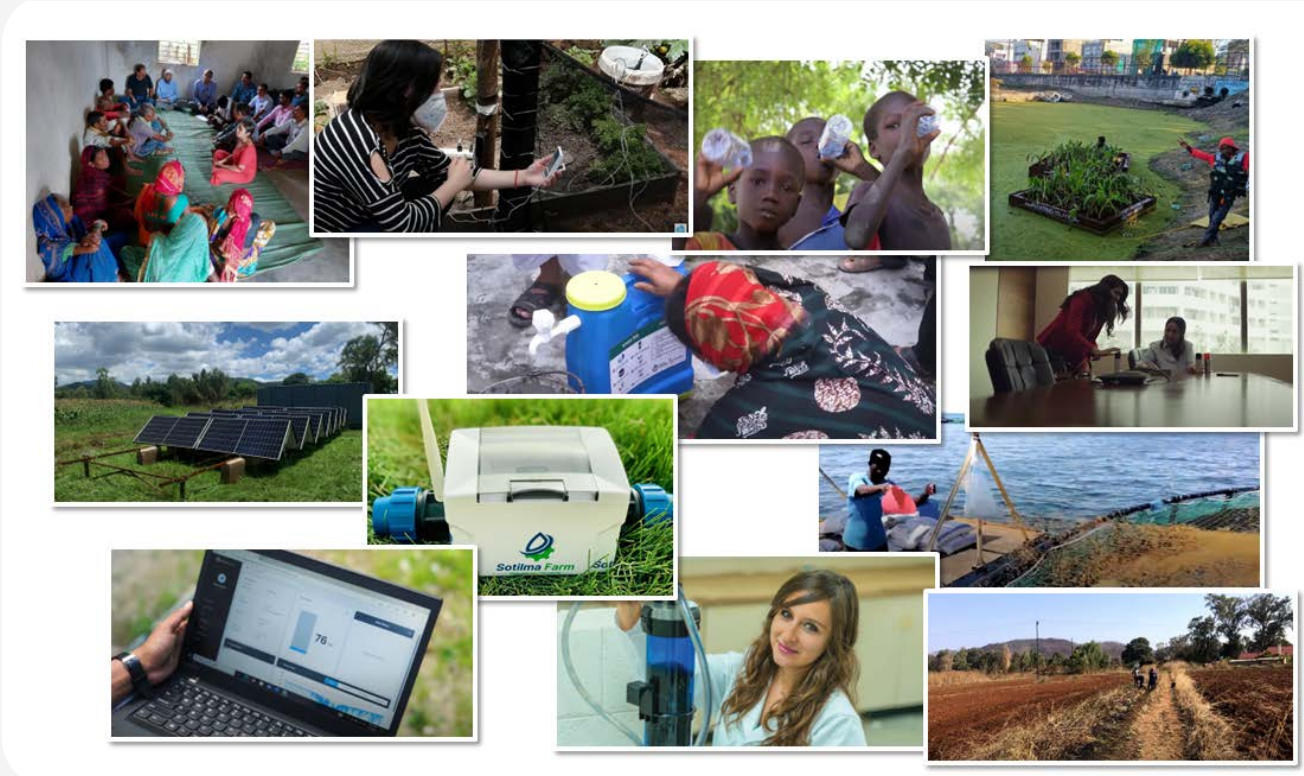
> Living in London, it was important for me to find an outdoor volunteering opportunity where I could learn something new and feel part of the community. The community farm where I volunteer doesn't use pesticides, so it can be labour intensive, but we get through it and it's great to see the farm increase the supply of locally produced food. There are lots of benefits from volunteering, spending time with other people, and being in nature. My time as a volunteer has really helped me connect with the growing, cooking, and farming process.
>
> Helena Connors, Consultant

Eunomia are also supporting the World Bank with their Youth Innovation Challenge: Water Solutions for a New Climate Reality. The competition, launched at COP28, is designed to accelerate innovation and unlock the potential of the next generation of youth aquapreneurs. It aims to find innovative solutions tackling one or more of the four global water challenges:

- Too much water
- Too little water
- Contaminated water
- Mismanaged water

Eunomia helped choose the leading aquapreneurs for the World Bank challenge. We used rigorous assessment criteria to screen over 100 applications from across the world to draw up a shortlist of outstanding individuals and innovations.

Our CEO, Jonquil Hackenberg, will be providing one-to-one mentoring to the shortlisted candidates as part of the six-month Accelerator Program – supporting them to develop their business ideas ahead of a pitch for investment at the end of the programme.



Our Global Reach

Circular Economy

The ways we use materials are pushing planetary boundaries to breaking point. Our systems for extracting, manufacturing, transporting, using, and disposing of materials are contributing heavily to the triple planetary crisis – generating high emissions, depleting natural resources, and damaging ecosystems.

The solution lies in moving from a material-hungry, linear economy to a circular economy in which we extract fewer virgin resources, regenerate natural systems, minimise waste, and keep products and materials in use as long as possible.

This is a complex journey, but an achievable one. It demands policies that enable transformation from a take-make-waste approach towards a closed-loop, regenerative system. It means redesigning products, processes, and business models for greater material efficiency and lower environmental impact.

Eunomia works at the leading edge of circular economy thinking and practice.

We provide thought leadership and hands-on design for innovative policies to enable the transition to a circular economy in the European Union and beyond.

We apply our technical expertise to devise and model practical solutions to real-world circularity challenges, from reuse systems to recycling specifications.

We also work with clients in the private sector to assess and redesign their business practices so they can reduce waste and improve outcomes for both the environment and commerce.

Managing Materials for 1.5°C: An EU-level Regulatory Framework for a Low-Carbon Material Economy

Eunomia researched, developed, and published a white paper[1] and report[2] proposing a new EU regulatory framework to accelerate Europe's transition to a circular economy.

With its track record in climate policy and capacity for high-level regulation and market influence, the European Commission is well placed to provide the global leadership and political vision needed to realign our relationship with materials for a sustainable, thriving future within a 1.5° C carbon budget.

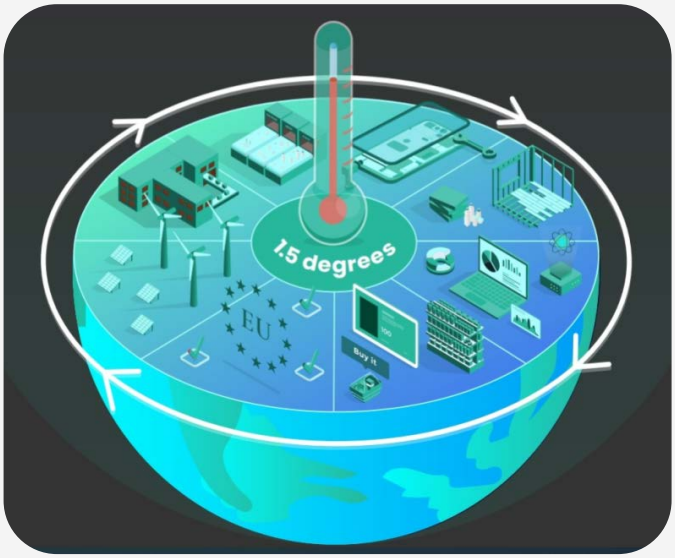
Eunomia's report presented a comprehensive set of recommendations designed to help Europe prosper in the long term while reducing pressure on resources. We set out the components of a regulatory framework that will:

- **Decarbonise material production** by extending and aligning the scope of the EU Emissions Trading Scheme and Carbon Border Adjustment Mechanism.
- **Link, strengthen, and harmonise product policy** governing ecodesign for longevity and reuse, digital product passports, repair and reuse systems, product taxation, extended producer responsibility obligations, green public procurement strategies, and the product-waste boundary.
- **Reshape the Waste Hierarchy** to focus solely on materials at the point where they become waste.
- **Develop a new Materials Framework Directive** to help manage resources, including waste, through the lens of efficiency and circularity.

The proposed regulatory framework is designed to harness the power of the single market, support a strong industrial strategy for the European Union, minimise administrative burdens for business, and safeguard Europe's material security. It includes proposals to redistribute revenues from green measures to EU citizens to help ensure a just transition to a circular economy and address some current political challenges.

Our report launched during the Belgian presidency of the European Commission and in the context of proposed, limited, revisions to the Waste Framework Directive.

Eunomia's policy recommendations make an important contribution to the discussion among policymakers, business, and NGOs about how best to address the triple planetary crisis – climate change, nature and biodiversity loss, and pollution and waste – through our approach to managing materials.



[1] Eunomia 2023 Reimagining the Waste Framework Directive – White Paper. Available at: https://eunomia.eco/reports/reimagining-the-waste-framework-directive/
[2] Eunomia 2024 Managing Materials for 1.5°: An EU-level Regulatory Framework for a Low-Carbon Material Economy. Available at: https://eunomia.eco/reports/managing-materials-for-1-5oc-an-eu-regulatory-framework-for-a-low-carbon-material-economy/

Assessing Climate Impact: Reusable Systems vs Single-use Takeaway Packaging

Eunomia modelled the greenhouse gas emissions from reusable takeaway food containers compared to single-use equivalents. We found that, for most types used in Europe, reusing them through a safe, efficient system could generate greater environmental benefits than recycling or discarding single-use takeaway packaging.

For all the convenience that on-the-go food and drink offer, single-use containers extract a high environmental price. EU citizens used more than 33 billion single-use containers for warm drinks and food in 2019, and these figures are rising year by year in tandem with the environmental and financial costs of managing so much waste.[3] For this to change, consumers need easy-to-use infrastructure and systems for returning packaging so it can be washed and reused.[4]

Eunomia modelled the greenhouse gas emissions associated with the manufacture, use, and waste management of various common takeaway container types, comparing emissions from single-use options to packaging reused in a well-designed system.[5]

The study found that, for all container types except pizza boxes, switching from single-use (both plastic and paper) to reusable ones in an efficient system has good potential to reduce GHG emissions.

	No. of uses to break even with single-use carbon footprint	Return rate to break even with single-use carbon footprint
Burger boxes	30	97%
Pizza boxes	63	98%
Bowls	13	92%
Sushi boxes	35	97%
Cups for cold drinks	6	83%
Cups for hot drinks	6	83%

Eunomia's modelling demonstrated the clear environmental benefits of designing robust systems for returning reusable takeaway packaging. Our study strengthened the case for setting higher reuse targets in the EU's Packaging and Packaging Waste Regulations (PPWR), although the recent revisions in fact weakened the previous PPWR targets .

[3] Rethink Plastic Alliance 2022 Fact sheet: Reusable takeaway packaging. Available at: https://rethinkplasticalliance.eu/wp-content/uploads/2023/06/PPWR-Fact-Sheet-1.pdf
[4] Zero Waste Europe 2022 Making Europe transition to reusable packaging. Available at: https://zerowasteeurope.eu/wp-content/uploads/2022/05/ZWE_-Making-Europe-Transition-to-Reusable-Packaging.pdf
[5] Eunomia 2023 Assessing Climate Impact: Reusable Systems vs. Single-use Takeaway Packaging. Available at: https://eunomia.eco/reports/assessing-climate-impact-reusable-systems-vs-single-use-takeaway-packaging/

Global Treaty to End Plastic Pollution

Eunomia delivered three studies to inform negotiations for a new global treaty to tackle plastic pollution. For WWF, we conducted a deep dive into some core components of the treaty, exploring pollution risks, control measures, and reuse applications. In a separate study, we supported Reloop to draft a position paper that set out priority elements for the treaty.

Since March 2022, when 175 nations voted to adopt an international treaty on plastic pollution, the UN Environment Programme has been leading negotiations with the aim of finalising the treaty by the close of 2024.

The need is urgent: of the 462 million tons of plastic currently produced across the globe, 90% becomes waste that pollutes land and seas, damages human health, harms wildlife and ecosystems, and costs billions to manage. Global plastic pollution is on track to triple by 2040, despite various national and voluntary actions to slow it.[6]

This treaty will set out legally binding, globally equitable agreements to change how we produce, design, consume, and dispose of high-risk plastic. To make it robust and effective, it must be informed by careful evidence-gathering and analysis like the separate studies Eunomia conducted for WWF and Reloop.

World Wildlife Fund (WWF)

For WWF, Eunomia grouped the most problematic plastics according to their properties, uses, and pathways to the environment. We built a criteria framework for assessing each group's pollution probability and impacts. We classified groups with the highest risk of pollution and prioritised them according to their potential for elimination or significant reduction in use. We then identified the best measures to prevent, reduce, and control their introduction into the environment.[7]

[6] WWF Global Treaty to End Plastic Pollution webpage: https://www.worldwildlife.org/pages/global-plastics-treaty
[7] WWF 2023 Breaking Down High-Risk Plastic Products: Assessing pollution risk and elimination feasibility of plastic products – Towards a treaty to end plastic pollution. Available at: https://webadmin.wwfchina.org/storage/files/WWF_BREAKING%20DOWN%20HIGH-RISK%20PLASTIC%20PRODUCTS_R1_FINAL.pdf

Our clear, evidence-based assessment is designed to inform appropriate regulatory approaches and control measures that work in combination with bans, phase-outs, obligations on production and consumption, and financial mechanisms. The prioritisation and assessment framework we developed is intended to support a start-then-strengthen approach, so it can be used in the future as new evidence for risks emerges.

Eunomia's presentations and published reports are intended to support WWF's efforts to inform ongoing discussions and national efforts to implement change. Our research also demonstrated that using a product-based approach to categorising high-risk plastics is both feasible and helpful.

In May 2023, at the invitation of WWF, Eunomia presented the findings at the Asia pre-INC2 virtual forum, hosted by the Coordinating Body on the Seas of Asia, Partnerships in Environmental Management for the Seas of East Asia, and WWF. The forum considered the benefits of the plastic pollution treaty, including potential provisions on high-risk plastic product categories, circularity, and financing mechanisms. In March 2024, again at WWF's invitation, we presented the results at informal technical workshops for regional negotiators in Africa and Latin American & the Caribbean (both pre INC-4).

WWF subsequently asked Eunomia to conduct another deep dive into the most promising applications for reuse and explore how these could be incorporated in the new treaty to end plastic pollution.[8]

Reloop

Eunomia worked with Reloop to draft a position paper that set out three priority elements for creating an effective treaty.[9] These emphasise the importance of:

1. Intelligent, binding targets for national governments to achieve real improvement within a clear time frame;
2. A globally harmonised set of definitions and system of data governance to underpin the process of negotiating, implementing, and monitoring the treaty; and
3. A reliable framework for mandatory extended producer responsibility that puts the polluter pays principle at the heart of control measures.

In all three studies, we deployed our technical expertise in plastic pollution and our detailed understanding of circular economy policy and regulation to support the development of this milestone treaty – one with potential to change a global trajectory and make the planet safer for us and our co-habiting species.

[8]WWF 2024 Unpacking Reuse in the Plastic Pollution Treaty: A historic opportunity for scaling up reuse. Available at: https://wwfint.awsassets.panda.org/downloads/unpacking_reuse_240410_high-res.pdf
[9]Reloop 2023 Tree priorities for an international legally binding instrument on plastic pollution, including in the marine environment. Position paper. Available at: https://resolutions.unep.org/resolutions/uploads/230109_reloop.pdf

The 50 States of Recycling: A State-by-State Assessment of US Packaging Recycling Rates

Eunomia collaborated with Ball Corporation, a leading manufacturer of aluminium packaging, to conduct a comparative assessment of packaging recycling rates in all 50 states of the US, building on our first-of-its-kind 2021 study.

In a strong circular economy, recycling is a key stage in a system that feeds material into the supply chain multiple times (so that a used can becomes a new can, for example). It captures valuable material that would otherwise go to landfill and transforms it into resources with fresh economic potential. It also means fewer greenhouse gases are emitted from extracting virgin materials and converting them into packaging.

To understand the current state of recycling in the US, Eunomia researched and analysed data on waste generation, recycling, and disposal rates for different packaging materials: cardboard, boxboard, and paper; flexible and rigid plastics; glass bottles and jars; and aluminium and steel cans.[10] With many states measuring recycled material in inconsistent or inadequate ways, we developed the first robust methodology to assess available data, account for differences between states, and accurately compare recycling rates.

We found that currently, the US recycling industry only captures about 32% of the value of material in the packaging waste stream – meaning a potential $6.5 billion in value goes to landfill rather than back into the economy.

We also found that actual recycling rates have stalled or dropped since 2021, with a notable exception: states offering recycling refunds (also known as deposit return systems or bottle bills) recycle almost five times as many beverage containers as other states.

[10] Eunomia 2023 The 50 States of Recycling 2023. Available at: https://eunomia.eco/reports/the-50-states-of-recycling-2023/

By modelling an ideal future scenario and comparing the outcomes with those from current recycling rates, we demonstrated that implementing well-designed recycling refunds, along with extended producer responsibility (EPR), would maximize closed-loop recycling and the associated economic, environmental, and social outcomes.

In this ideal scenario, the value of material captured, employment income from related jobs, the emissions reduction benefit (based on the social cost of carbon), and gross value added to the economy would together amount to $70 billion in monetary benefit.

Eunomia's assessment has strengthened the environmental and economic case for expanding recycling infrastructure and systems in the US and building public and private sector partnerships to foster simple, convenient circular processes. Our work has been used to support the development of an EPR bill in Tennessee and is informing efforts elsewhere to develop smart policies that encourage recycling for future prosperity and circularity.[11,12]

[11] Reimagine Packaging Tennessee n.d. *Tennessee Waste Reduction and Recyling Act: Information Sheet.* Available at: https://static1.squarespace.com/static/63c17e6a460b124a1f7dcd4a/t/660172025f0f6f30ef2138f6/1711370754479/TWRRA_1Pager.pdf

[12] Kuffner, A 14 March 2024 'Would a bottle bill work in RI? Advocates look to Oregon for the example,' *Providence Journal.* Providence, RI, USA.

Natural Economy

Our complex, beautiful natural world is essential to our wellbeing and survival. We rely on clean water, fresh air, healthy soils, and thriving biodiversity for food, drinking water, energy, and climate regulation.

Many economic sectors – from farming to fishing, renewable energy to tourism – also rely on these assets. Eunomia's natural economy expertise has developed to encourage better investment that will protect and improve them for our future.

Our work in this sphere supports clients to protect and regenerate the environment and manage precious natural resources in sustainable ways.

Eunomia helps shape public policy that will manage and balance competing land use demands.

We work with private sector clients to decarbonise their operations and develop food systems that minimise impacts on the natural environment.

We support non-profit organisations by providing robust evidence to challenge the status quo and drive urgent policy change.

We also deploy our understanding of the needs and perspectives of different stakeholders and our skill in finding common ground to design approaches that successfully navigate conflicting requirements.

In a recent project for Defra, Eunomia's Natural Economy team showcased their unique ability to combine systems thinking principles and established research methods to generate insights about the sources of complexity within the land use system by studying emerging drivers, changing trends, and shifting dynamics. This involved negotiating uncertainties and interdependencies, as well as iteratively defining research boundaries.

Eunomia demonstrated an impressive capacity to learn and apply techniques being used across Defra's systems research, including deliberative dialogue with farmers and land use advisors to inform policy decisions.

– Systems Researcher, Department for Environment, Food & Rural Affairs (Defra)

Nature South West Phase 1 Scoping Project

and their partners

Eunomia worked closely with Natural England, National Landscapes, and their partners to scope the potential for a regional partnership that will help drive nature recovery and climate resilience at scale in the South West of England.

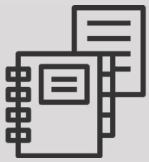
Natural England and its partners are working to put the South West firmly and sustainably on the path to nature recovery, in line with local ambitions as well as national goals expressed in the Environmental Improvement Plan and Net Zero Strategy. The large-scale partnership Nature North has already demonstrated the effectiveness of an approach which encourages partnerships between the public, private, and third sectors and which channels finance into projects that restore and enhance ecosystems at an aggregated scale to bring efficiencies and attract larger investors.[13]

Eunomia gathered evidence and conducted a scoping exercise to clarify how a similar regional partnership could support nature recovery in the South West and how that might work in practice.

To build an evidence base, we engaged with a range of regional stakeholders to gauge support for the concept and gather feedback on a potential partnership's vision, role, governance structure, and projects. We also scoped ongoing nature recovery projects in the South West, focusing mainly on biodiversity and climate change mitigation.

We found that Nature South West could boost the flow of green finance into regional nature recovery projects by:

- helping to scale up existing projects
- matching buyers and investors with suppliers
- providing strategic direction for projects
- fostering collaboration between stakeholders
- acting as a repository and disseminator of knowledge



We recommended that Nature South West should develop in a way that ensures:

- **Efficiency** – avoid duplicating existing effort or putting additional strain on resources
- **Accessibility** – represent a range of voices and enable various stakeholders' access to the market
- **Effectiveness** – enable action to support the delivery of economically and socially viable environmental outcomes

Natural England and its partners have engaged Eunomia to continue supporting the development of this important new initiative for South West England.

[13] Nature North 2024 [Website] Accessed via: https://www.naturenorth.org.uk/

Solutions for Nature-Based Investment in Shropshire

Eunomia explored how private sector investment can support nature recovery through mechanisms that blend public and private finance. Our research found considerable appetite among businesses and farmers to collaborate in building a more resilient natural environment.

Government funding, through the Environmental Land Management Schemes (ELMS), rewards farmers for environmentally sustainable land management practices that restore nature, connect existing wildlife-rich habitats, and create new ones.

However, according to the Green Finance Institute, another £44-97 billion is needed to meet UK nature recovery targets over the next decade.[14] As the 25 Year Environment Plan highlights, we need private as well as public sector investment to fund measures that will mitigate climate change, reduce flood risk, and protect and restore biodiversity.[15]

Shropshire Wildlife Trust asked Eunomia to explore how private sector investment could help close the funding gap by supplementing or replacing ELMS.

We conducted market research to match the types of nature-based project that landowners could deliver with private sector demand and to understand which finance mechanisms would work for each party. We interviewed local businesses to learn what kinds of benefit they seek from nature-based solutions – such as biodiversity gain, carbon storage, or flood management. Farmers were also asked about opportunities, barriers, and preferences for using private finance to pay for nature recovery.

We found that, with nature markets and associated policies rapidly developing, many market players are hesitant about long-term investments. Both landowners and local businesses value flexibility, strong relationships, and a shared vision of the future as foundations for negotiation.

Organisations like Shropshire Wildlife Trust can play important roles in finding common ground, identifying mutually appealing nature-based projects, and brokering finance arrangements.

Our research generated insights to help SWT, and similar organisations, navigate the challenges and opportunities of forging relationships and deals between farmers and businesses, enabling them to work together for a healthier environment and a more sustainable future.

---

[14] Green Finance Institute 2021 *The Finance Gap for UK Nature.* Available at: https://www.greenfinanceinstitute.com/wp-content/uploads/2021/10/The-Finance-Gap-for-UK-Nature-13102021.pdf

[15] HM Government 2018 *A Green Future: Our 25 Year Plan to Improve the Environment.* Available at: https://assets.publishing.service.gov.uk/media/5ab3a67840f0b65bb584297e/25-year-environment-plan.pdf

Building a Sustainable Welsh Food System: Economic, Social, & Cultural Impact Assessment of Agroecological Pathway Scenarios

To help WWF test the ambition of Welsh Government policy and sustainable land management planning, Eunomia modelled the biophysical possibility and likely environmental, socio-economic, and cultural impacts of four pathways for a transition to Net Zero agroecology in Wales by 2050.

Welsh Government policy, including the Sustainable Development Land Management Framework and the Net Zero Wales Carbon Budget 2 (2021-25), aims to transform agriculture into a holistic, low-emission system for food production and land management in ways that are fair, collaborative, and equitable. It prioritises the production of food and other resources using methods that promote ecosystem resilience, mitigate climate change, and conserve rural landscapes and cultures.

Agroecology applies ecological principles to farming to maintain mutually healthy interactions between plants, wildlife, soil quality, and communities' needs. Agroecological approaches can restore biodiversity, reduce pollution and soil erosion, and build nutritional resilience against international market dynamics.

To test the ambition of Welsh Government aims and build on the WWF report *Land of Plenty*[16], Eunomia modelled the biophysical impacts of transitioning to agroecology in terms of greenhouse gas (GHG) emissions, food production, nutritional security, and the need for synthetic fertilisers. We also modelled wider environmental impacts – for example, on biodiversity and water and air quality – as well as socio-economic and cultural impacts.

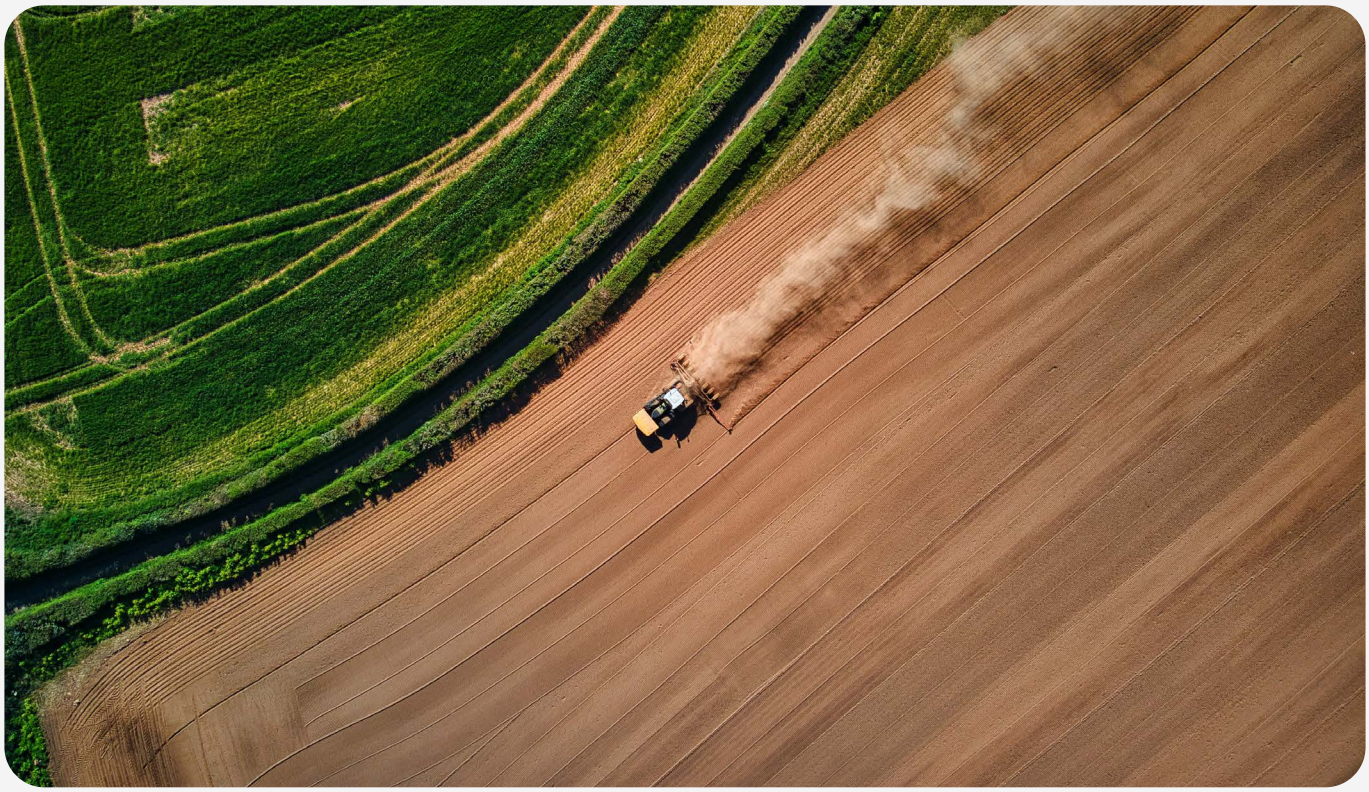
We found that by 2050, a full agroecological shift could cut Welsh territorial greenhouse gas (GHG) emissions from agriculture by 67% compared to 2018 levels (78% including overseas scope 3 emissions).

Measures like using less imported livestock feed, decarbonising machinery, diversifying food production, converting some pasture to woodland, and using more manure and cover crops as fertiliser could improve soil health, eliminate the need for synthetic fertiliser, and strengthen the country's nutritional security. We also found that territorial emissions would fall from between 40% to 67% under three other scenarios that align with Government decarbonisation plans and variations on the Land of Plenty blueprint.

Our study employed advanced modelling capacities and inter-disciplinary technical expertise across carbon, agriculture, natural economy, nature recovery, and consumer behaviour, with additional expertise from Cumulus Consultants to assess farm-level financial impacts.

Eunomia's study provided WWF with technically robust information to engage with the Welsh Government about using agricultural support and wider rural investment to advance its goals for a healthy, Net Zero, nature-positive Wales.

[16]WWF 2022 *Land of Plenty: A nature-positive pathway to decarbonize UK agriculture and land use.* Available at: https://www.wwf.org.uk/sites/default/files/2022-02/WWF_land_of_plenty.pdf



UK Land Use for Net Zero, Nature, and People workshop

Department for Science, Innovation, & Technology

defra
Department for Environment Food and Rural Affairs

The Scottish Government
Riaghaltas na h-Alba

UK Research and Innovation

Department for Energy Security & Net Zero

In collaboration with other members of the new Land Use for Net Zero (LUNZ) Hub, Eunomia delivered a two-day workshop with key players in land use policy making, research, and governance. The workshop sought to identify approaches that can be used consistently by the four UK nations to develop comparable pathways to Net Zero.

Agriculture and land use are contributing significantly to greenhouse gas emissions. At COP28, the UK Government endorsed a declaration of intent to increase public funding and scale up science-based solutions that will make agriculture more sustainable and food systems more resilient to climate change.[17]

A groundbreaking, cross-sectoral, transdisciplinary consortium, the LUNZ Hub was created to advance research and integrate knowledge on land use – from soil carbon to afforestation, renewable energy to green finance – and help metabolise evidence into policy to reduce agricultural emissions in all four UK nations.[18]

[17]COP28 UAE 2023 *Declaration on Sustainable Agriculture, Resilient Food Systems, and Climate Action*. Available at: https://www.cop28.com/en/food-and-agriculture

[18] The LUNZ Hub is co-funded for 40 months by UK Research & Innovation. It was co-designed by Defra and the Welsh and Scottish Governments.

Eunomia is one of 34 leading research and stakeholder organisations making up the LUNZ Hub, which is co-led by the James Hutton Institute and the University of Leicester, with £6.25 million in funding until 2027. We bring our expertise in holistic land use change, carbon dynamics, and reducing agricultural emissions; our experience working with stakeholders across the land use value chain; our track record in impactful work for policy makers; and our leadership in shaping strategic vision, foresight, and scenario development.

The workshop drew together 40 stakeholders from each UK national government, the major environmental NGOs, farmer organisations, and research institutions concerned with agriculture and land use. It was delivered in Manchester in partnership with Professor Paula Harrison of the UK Centre for Ecology and Hydrology.

Over two days, participants explored these questions:

- What are our targets for Net Zero, nature, and people?
- What are the on-the-ground actions that could help us reach these targets?
- What are the preferred Net Zero pathways for each nation based on clusters of key actions?
- What drivers of change are likely to deliver these actions and how are these linked?
- Which drivers of change are the most influential and which actions are most likely to be impacted?

The workshop began the process of building consensus on the scope, components, principles, and intended outcomes of a common scenario framework. This framework will help forge a flexible way of thinking about Net Zero in land use to facilitate the development of unique but comparable pathways in each UK nation, as well as synthesis between them. The workshop also gathered perspectives on the best environmental, social, and economic outcomes for the pathways.

This marked an important first step in the efforts of the LUNZ Hub to drive necessary transformations in land use. The next steps will be a series of events in each of the four nations, the development of modelled pathways to Net Zero, and stakeholder input to refine these and create viable pathways for change.

https://lunzhub.com/

Carbon Economy

Around the world, societies have set goals to reduce emissions to the point where we are removing the same quantity of planet-warming gases as we produce. So far, progress towards Net Zero is patchy and the pace is slow, but – with carbon dioxide levels in the atmosphere rising fast[19] – the imperative is stronger than ever.

Fossil fuels have been powering industry, providing energy, and driving supply chains for over 200 years, and now carbon is woven through most of the product, material, and energy flows that enable daily life.

Decarbonisation demands a detailed grasp of emission scopes, unique policy insights, and forward-thinking business acumen – all of which Eunomia applies to our laser-sharp focus on meeting this challenge.

We use our detailed knowledge of emissions from land and material use to measure carbon footprints for organisations in the private, public, and third sectors, identify low-carbon solutions, and design their pathways to Net Zero.

We analyse supply chain emissions using a systematic, integrated approach to minimise net environmental impacts and keep them delivering the goods and services a thriving society needs – in ways that are profitable for our clients.

Leveraging our policy insights and our role as trusted, independent advisors to governments and NGOs, we advise private sector players on how to influence, respond to, and anticipate the transition to Net Zero.

[19] Milman, O. 9 May 2024 'Record-breaking increase in CO2 levels in world's atmosphere', The Guardian. Available at: https://www.theguardian.com/environment/article/2024/may/09/carbon-dioxide-atmosphere-record

Decarbonisation Strategy

Eunomia worked with Asian-inspired food retail and grocery brand itsu to identify robust decarbonisation actions, building on the company's previous steps to improve energy efficiency and reduce carbon emissions from its operations.[20]

We began by holding a series of discovery workshops across itsu's corporate baseline and business functions – grocery, retail, and new product development – to make sure we thoroughly understood the business, its level of decarbonisation ambition, and its progress to date.

We then created a list of long-term decarbonisation levers, drawing on our expertise in the food and beverage sector and research into best practice, academic literature, and competitor activities. We tested these levers with internal stakeholders through a series of workshops to understand the feasibility of integrating them with itsu's current practices.

We then refined the long list of decarbonisation levers and categorised each according to high or low priority, direct or potential emissions reduction, and where it might influence economy-wide decarbonisation. We worked out the timeline for implementing each lever, as well as the risks and relative costs, key performance indicators, follow-on actions, dependencies, co-benefits, and responsibilities.

We also developed a briefing note explaining the principles of carbon offsetting, along with recommended standards, costs, and challenges, and delivered a follow-up workshop to help itsu refine their decisions.

Finally, Eunomia designed an action plan for itsu. This flagged the need for enabling measures: ensuring people are empowered to implement the levers, making finance available where necessary, and identifying where decarbonisation activities can create value that aligns with itsu's overall business strategy.

Our exploratory study laid strong foundations for action on decarbonisation. It helped itsu to begin considering options and define its ambitions. It upskilled staff in terminology and carbon concepts, built their enthusiasm for action, and equipped them with the information to start dialogue with suppliers. Eunomia's action plan set out clear, practical steps to accelerate itsu's journey towards sustainability.

[20] Itsu Sustainability Milestones. Available at: https://www.itsu.com/sustainability-sourcing/sustainability-milestones/

PS200 Carbon Impact Assessment

Eunomia developed a life-cycle inventory for a bio-based prepreg resin system used in lightweight components for transport and other applications. Our results are helping SHD Composites, and the wider supply chain, advance their sustainability goals as they work to achieve Net Zero by 2050.

SHD manufactures a wide range of high-performance prepreg materials for use in lightweight vehicles and aircraft that consume less fuel and emit fewer greenhouse gases (GHG). The company is committed to accurately quantifying and minimising the emissions embodied in its products and to communicating that information to customers.

PS200 is a revolutionary resin system with its key building blocks derived from a low-carbon source – bagasse, a by-product of sugar cane processing. Highly flame-retardant, PS200 is ideal for use in making components like battery enclosures for electrical vehicles.[21]

SHD sought a carbon footprint for its PS200 resin system to understand the GHG emissions from its manufacture, spanning cradle to gate – from the cultivation of the raw material to the finished product as it leaves SHD's factory.

Eunomia calculated the carbon footprint in alignment with ISO standards 14044/44. This involved developing a detailed process flow for manufacturing PS200, combining both measured and estimated energy data for SHD's machinery, and working with upstream resin suppliers to integrate their own life-cycle assessment results into SHD's.

SHD used our carbon footprint findings to create a high-level, one-page GHG Profile for PS200, which it can confidently send to clients. Eunomia also provided SHD with a flexible carbon footprinting model, which it can use to guide strategic decisions on how to reduce GHG emissions in its operations.

[21] SHD Composites PS200 Highly Fame Retardant Prepreg Specification. Available at: https://shdcomposites.com/assets/news/-ps200-sailplane-battery-boxes.pdf

Circular Economy Baseline & Opportunities Assessment

Eunomia worked with ScottishPower, one of the UK's largest energy providers, to support the delivery of a vital commitment in its Greenhouse Gas Emissions Reduction Plan: developing a Circular Economy Baseline and Action Plan to help tackle emissions from the company's Scope 3 carbon footprint.

ScottishPower supplies gas and electricity to over five million households and businesses in the UK. As a vertically integrated energy company, it not only generates power but operates distribution and transmission networks and sells gas and electricity. In 2019, it became the first integrated energy company in the UK to generate 100% green electricity from its UK windfarms, provided to customers on its domestic green tariffs.

In 2023, ScottishPower committed to developing a detailed circular economy action plan by 2025 – one of several targets and actions for circularity set out in its Action 2030 strategy.

ScottishPower recognises that the resources needed to enable societal decarbonisation through building and operating renewable energy infrastructure are finite and have their own climate impacts. It is committed to reducing carbon emissions from the construction, operation, and maintenance of green electricity infrastructure by embedding circularity principles across its business processes.

Zero Waste Scotland (ZWS) commissioned Eunomia to support the company's efforts to achieve this goal.

We examined resource use across the company's energy networks and renewable production to identify potential ways of increasing circularity. We then gathered views from key industry stakeholders through interviews and targeted workshops. Based on this research, we created a long list of opportunities to enhance existing circularity and interventions that would remove barriers to increased circularity.

The outputs of Eunomia's work form the basis of ScottishPower's Circular Economy Action Plan, which will be developed in 2024-25 by its newly formed Circular Economy Working Group. This time-bound Action Plan for delivery will drive the further evolution of the company's strategy, governance, targets, metrics, data, and reporting.

Environmental Reporting & Carbon Reduction Plan

Eunomia worked with International Beverage to measure its greenhouse gas emissions and identify the most effective ways to tackle its carbon footprint. Our recommendations, set out in an Action Plan, are supporting the company to meet its Net Zero commitments and targets.

International Beverage crafts distinctive single malt whiskies at its distilleries in Scotland – Balblair, Balmenach, Old Pulteney, Knockdhu, and Speyburn – as well as gin, and it is committed to finding more environmentally sustainable ways to produce its spirits.

The company asked Eunomia to calculate its carbon footprint, help improve carbon literacy across the business, and identify opportunities to reduce emissions from its operations. Our team visited the distilleries, held stakeholder workshops, and gathered data to measure greenhouse gas emissions for the financial year 2021-22.

Eunomia developed a long list of potential decarbonisation interventions, categorised by scope and business area. We assessed the impact, timing, cost implications, ease of implementation, and challenges associated with each.

For the Scope 1 and 2 interventions, we modelled the likely energy and carbon reduction per year at each distillery along with potential cost savings, revenue generation, capital costs, and payback periods.

Following a workshop with International Beverage to discuss the interventions, we modelled a decarbonisation pathway for reducing Scope 1 and 2 emissions to Net Zero by 2040, in line with the Scotch Whisky Association target for the industry. We also provided guidance to help align the company's sustainability strategy with international carbon reporting frameworks.

Working with Eunomia was incredibly easy. All members of the Eunomia team were happy to help with any questions we had and helped to ensure all relevant data was being captured to ensure a full carbon footprint was established for ourselves.

– Alan Mitchell, Director of Operations, International Beverage

Thank you

That concludes our Impact Report for this year. Thank you for reading. Thank you for being a huge part of our journey – as employees; as clients; as partners.

We spent a good part of this past year cementing our collective Eunomian brilliance and doubling down on those areas of expertise. I mention this because, in a very noisy world of sustainability, it is easy to get swept away with the tide of being everything and nothing to everyone. We all need to stop proclaiming we have the sole answer to 17 sustainable development goals and Net Zero by 2030, because frankly, we haven't – alone.

If we are all to have true impact, we must all double down on our unique selling points and partner for everything else.

So, as you embark upon your doubling-down journeys, we are here to help you. We're then here for partnership. Call upon us for policy-led, science-informed advice on the impact of regulation and decision-making around the circular economy, carbon economy, and natural economy, and let's make climate adaptation a reality, together.

When you think Eunomia, think Unwasted.

Let's get busy doing.

Jonquil