Rulemaking Advisory Committee Meeting #5

Plastic Pollution and Recycling Modernization Act

Feb. 14, 2024

Zoom Meeting

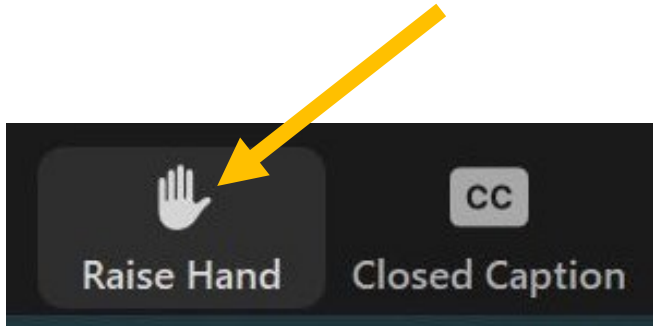
Agenda

Time	Topic
9:05 a.m.	Welcome, Overview of Today's Meeting
9:10 a.m.	Introductions- DEQ staff and RAC members
9:15 a.m.	Introduction to Life Cycle Assessment
10:00 a.m.	BREAK
10:10 a.m.	Rule Concept: Clarifying large producer disclosures and ecomodulation
11:15 a.m.	Public Input Period
11:30 a.m.	Rule Concept: Product Rule Categories
12:30 p.m.	Meeting adjourns

Note: Times subject to change and topics may begin earlier than listed

Meeting Tips

- Join audio either by phone or computer, not both
- For panelist discussion and comments, use the raise hand button to get in the queue; if by phone press *9
- This meeting is being recorded
- For Zoom technical issues email: stephanie.caldera@deq.oregon.gov



Meeting agreements

- Listen and treat everyone with respect
- Allow one person to speak at a time
  - please raise your hand
- Move around and take care of yourself as needed
- Share constructive feedback on rule concepts

Introductions- DEQ Staff

Arianne Sperry, meeting facilitator

Peter Canepa, technical lead for life cycle evaluations

Nicole Portley, project lead for PRO and producer rules

Introductions- RAC

Name	Affiliation	Representing
Aimee Thompson	Thompson Sanitary Service	Service Provider
Claire Dorfman	Amazon	Producer
Tim Budwala for Doug Mander	Circular Action Alliance	Producer Responsibility Organization
Greg Ryan	Pioneer Recycling	Commingled Recycling Processing Facility
Katy Nesbitt	Wallowa County	Local Government
Kristin Leichner	Pride Disposal	Service Provider
Marcel Howard	GAIA	Environmental
Maria Gabriela Buamscha	Lanin Iman Consulting	Community

Introductions- RAC

Name	Affiliation	Representing
Neil Menezes	General Mills	Producer
Rick Paul	Rim Rock Recycling	Community
Chris Drier	Waste Management	Commingled Recycling Processing Facility
Sydney Harris	Upstream	Environmental
Tracey Reed	Rogue Basin Partnership	Community
Warren Johnson	Metro	Local Government
Will Posegate	Garten Services Inc.	Commingled Recycling Processing Facility

Questions?

Introduction to Life Cycle Assessment

Life cycle impacts and the RMA

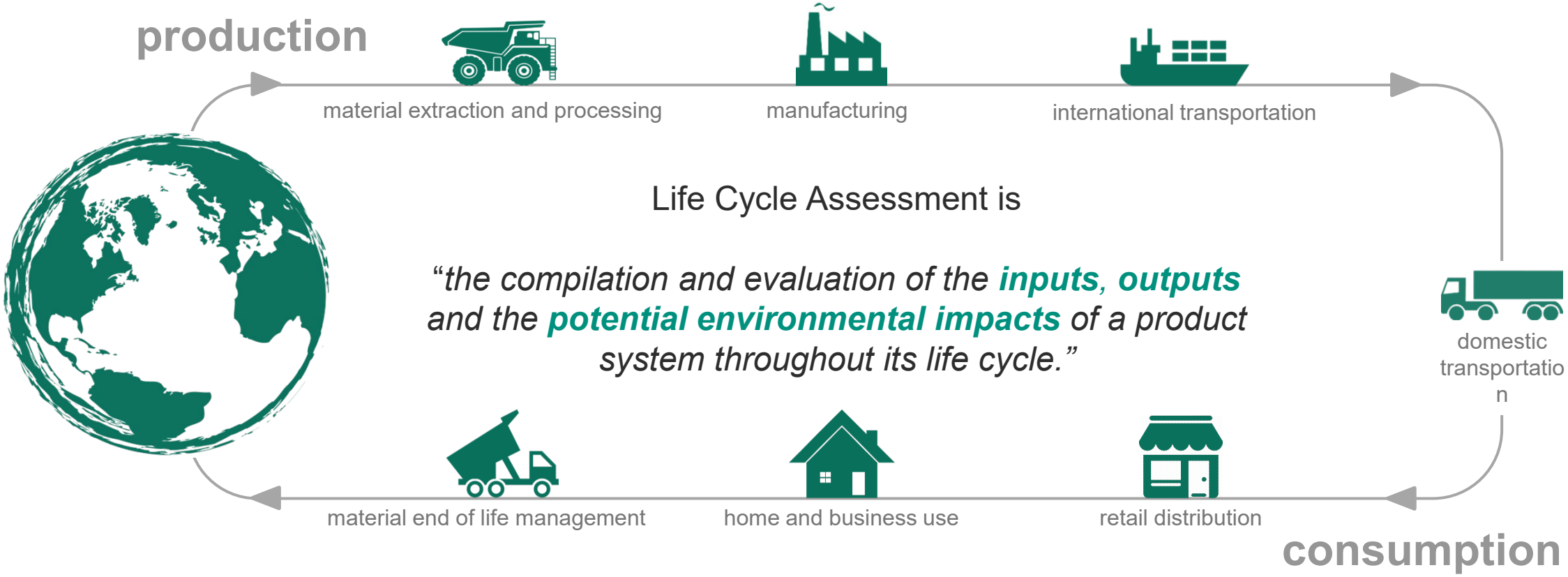
Objective:

- Reduce environmental and human health impacts of covered products

Requirements:

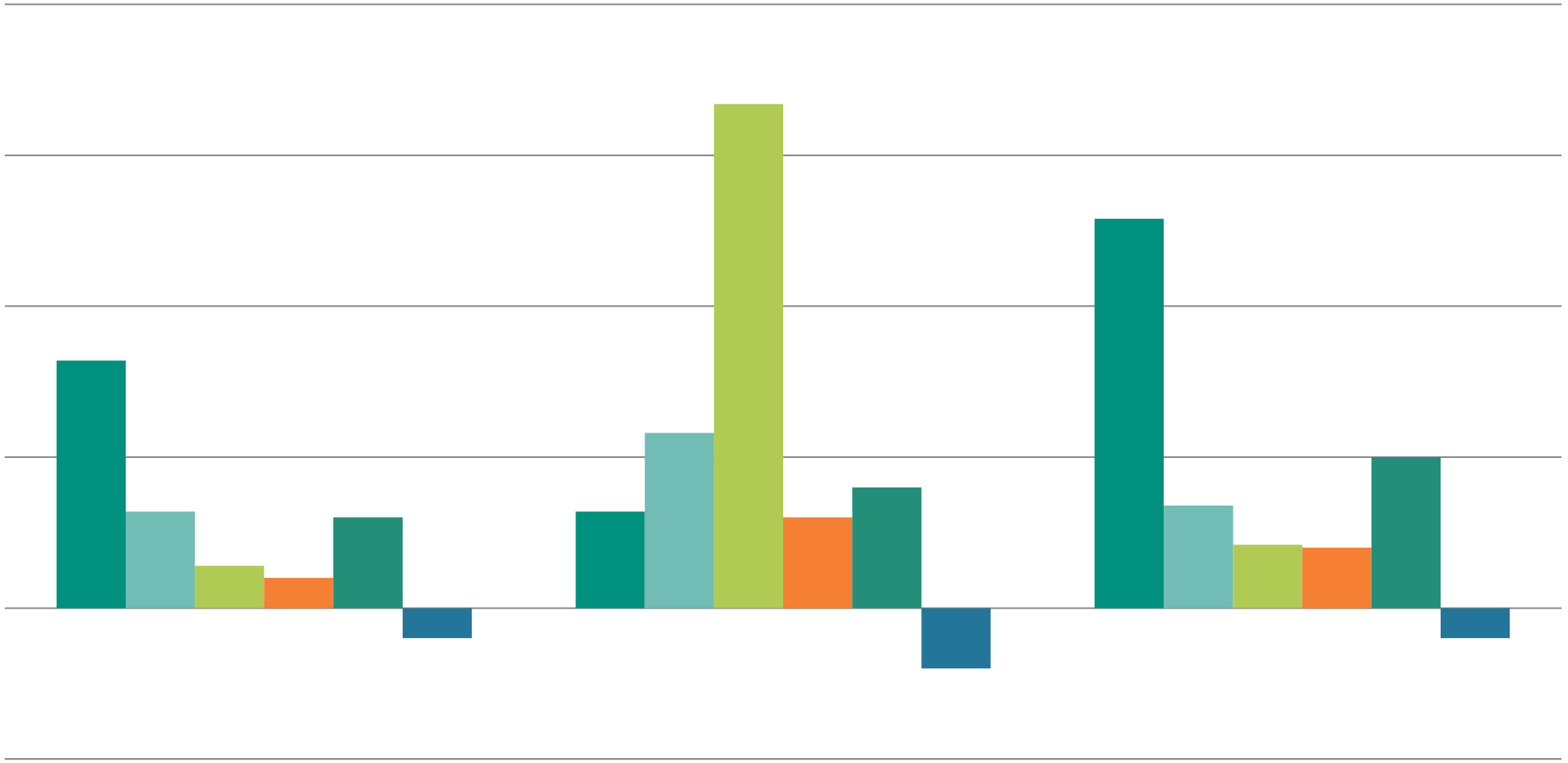
- Develop Methodological Rules (*ORS 459A.944*)
- Integrate in Fee Schedule (*ORS 459A.884*)

Material life cycle



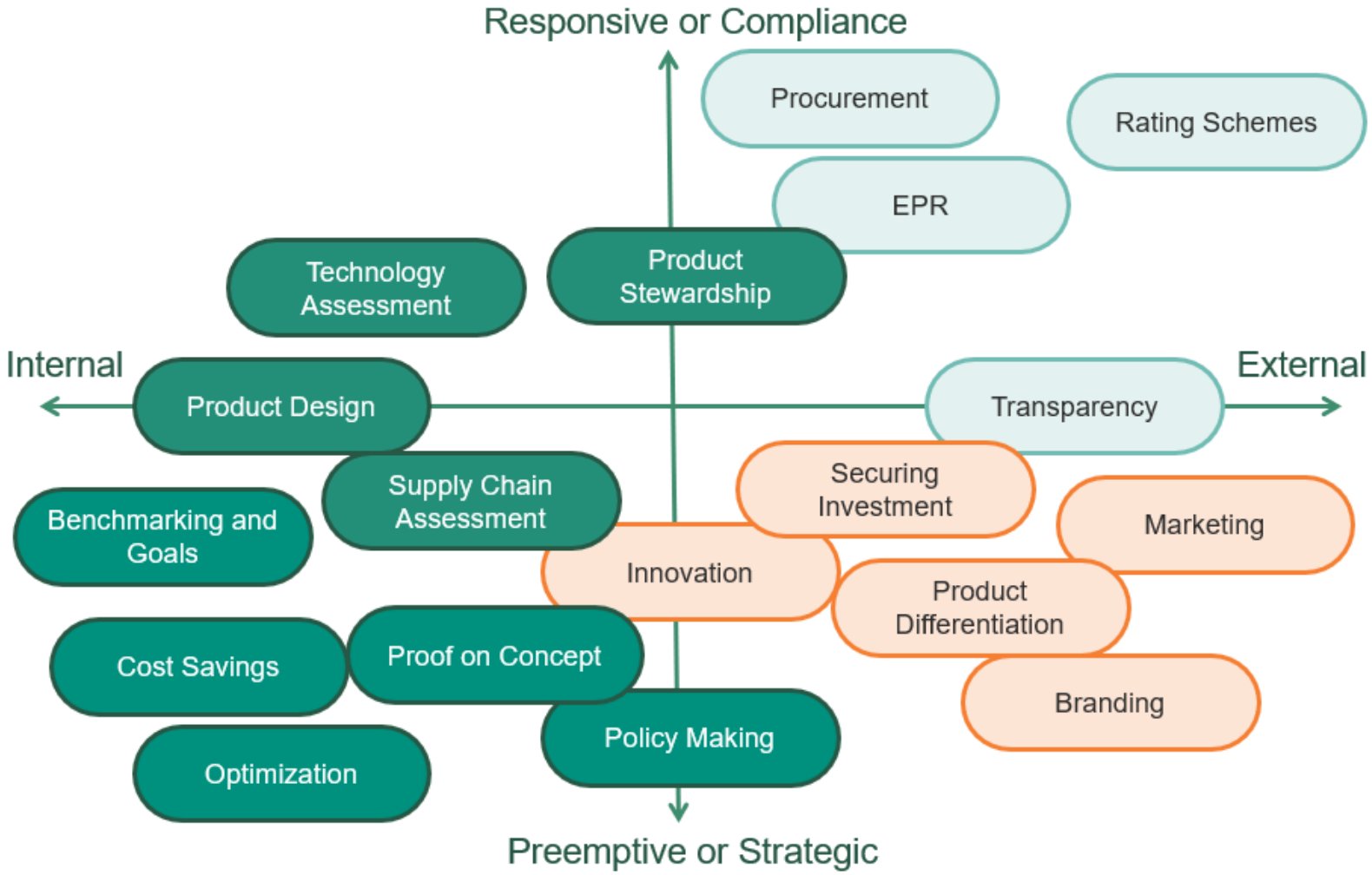
Holistic

Quantitative



Comparative

Why do LCA?


Responsive or Compliance
Procurement
Rating Schemes
EPR
Technology Assessment
Product Stewardship
Internal
External
Product Design
Transparency
Supply Chain Assessment
Securing Investment
Benchmarking and Goals
Marketing
Innovation
Product Differentiation
Cost Savings
Proof on Concept
Branding
Policy Making
Optimization
Preemptive or Strategic

For example


vs.

vs.



vs.



vs.



vs.



vs.



vs.

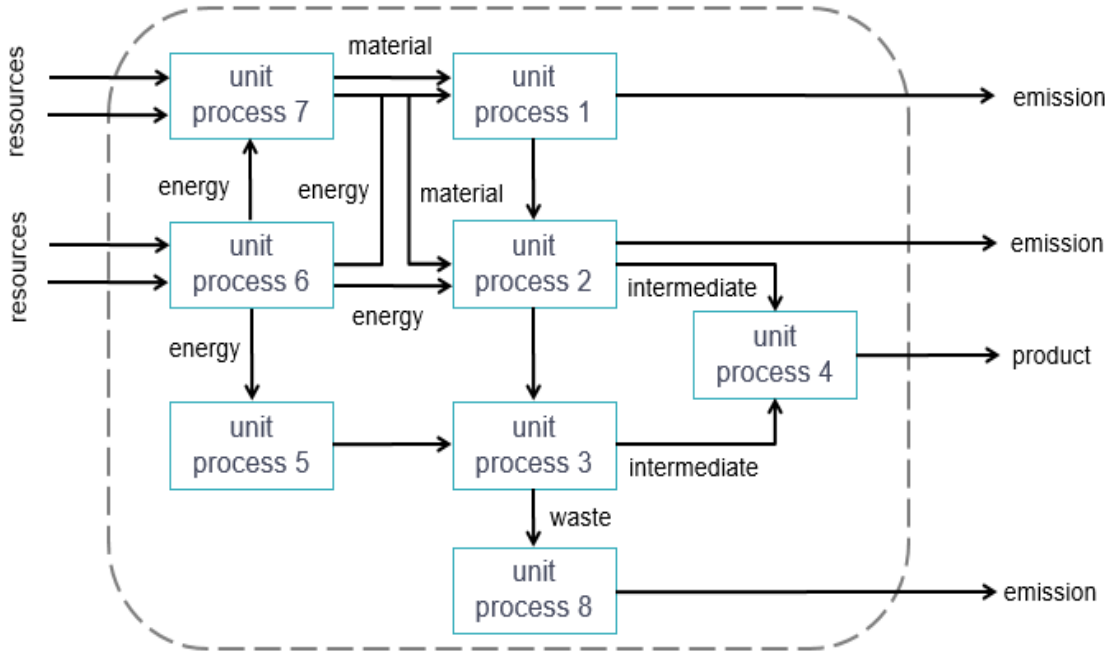
vs.

vs.

vs.

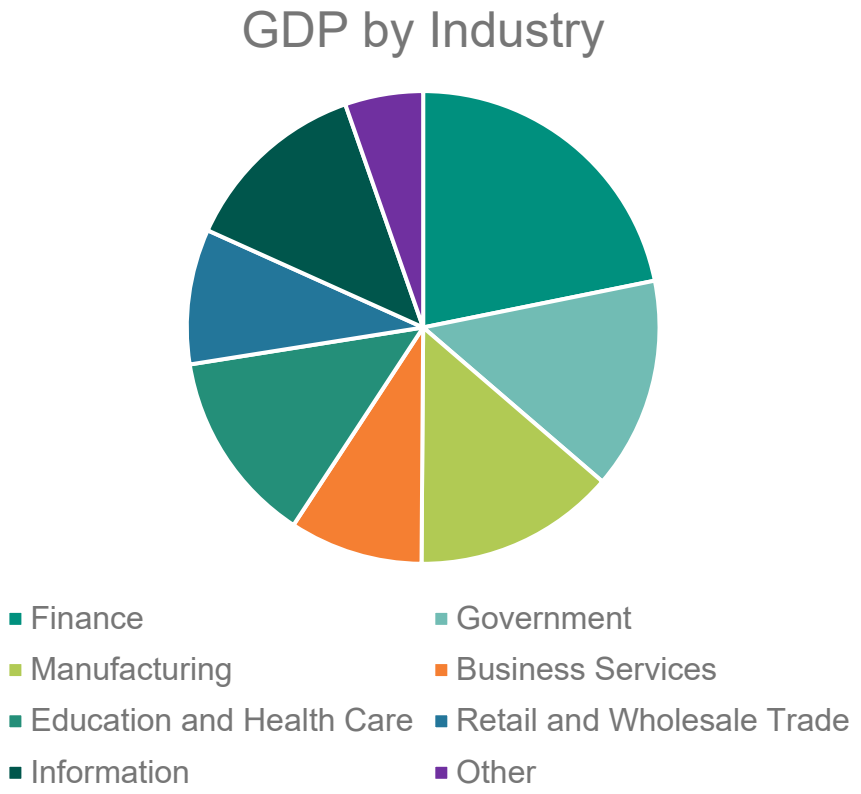

Types of LCA

Process-based

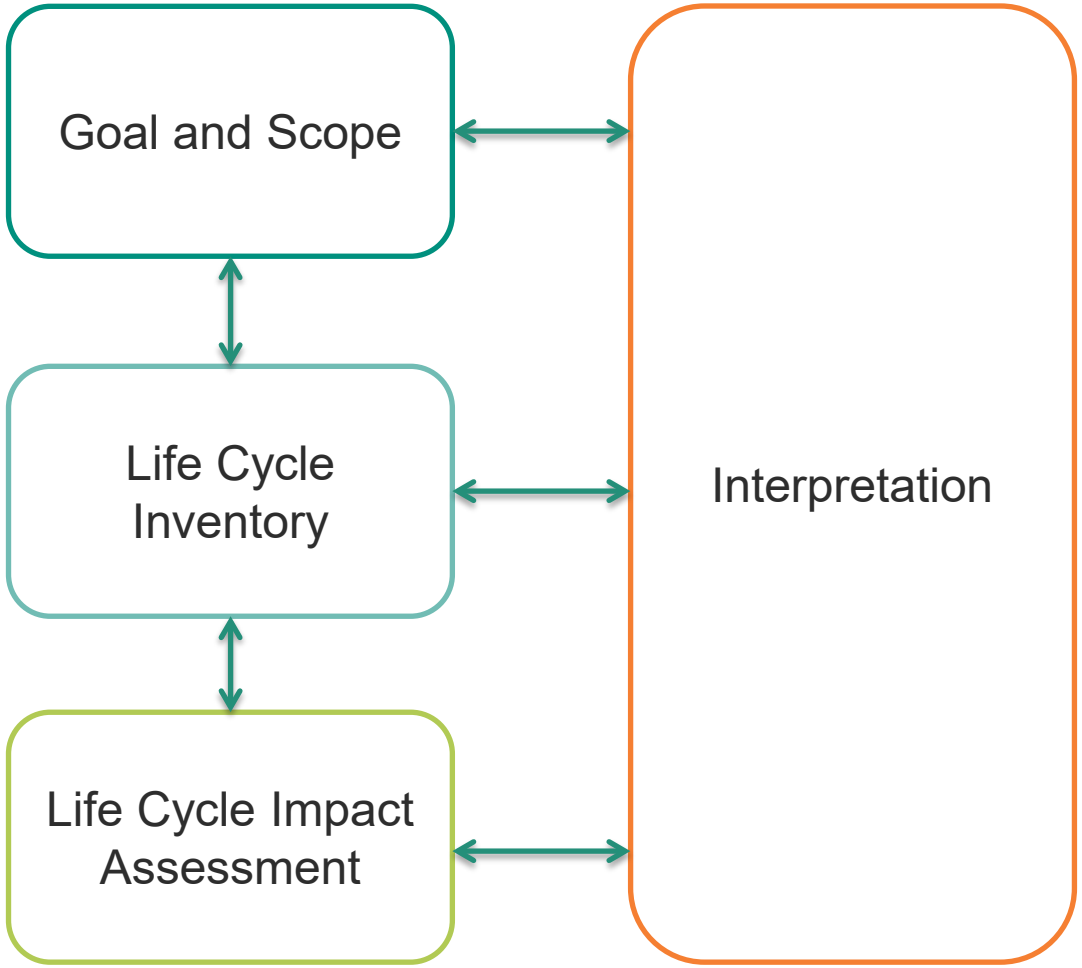


Example of a "cradle-to-gate" product system and boundary

Economic input/output-based

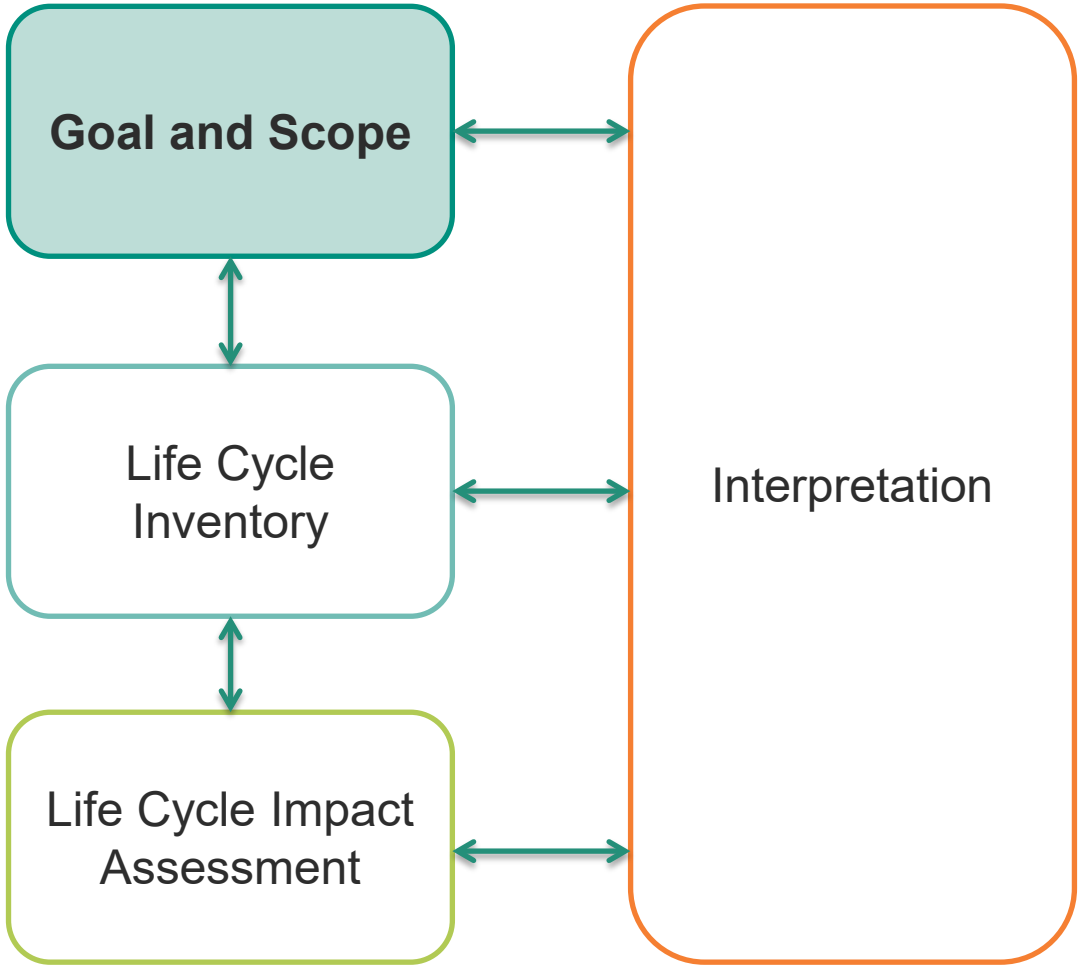


Standard LCA Framework



Based on ISO Standards 14040 and 14044

Phase 1 – Goal and Scope



Based on ISO Standards 14040 and 14044

Goals

- The intended application
- The reasons for carrying out the study
- The intended audience, i.e. to whom the results of the study are intended to be communicated
- Whether the results are intended to be used in comparative assertions intended to be disclosed to the public

Scope

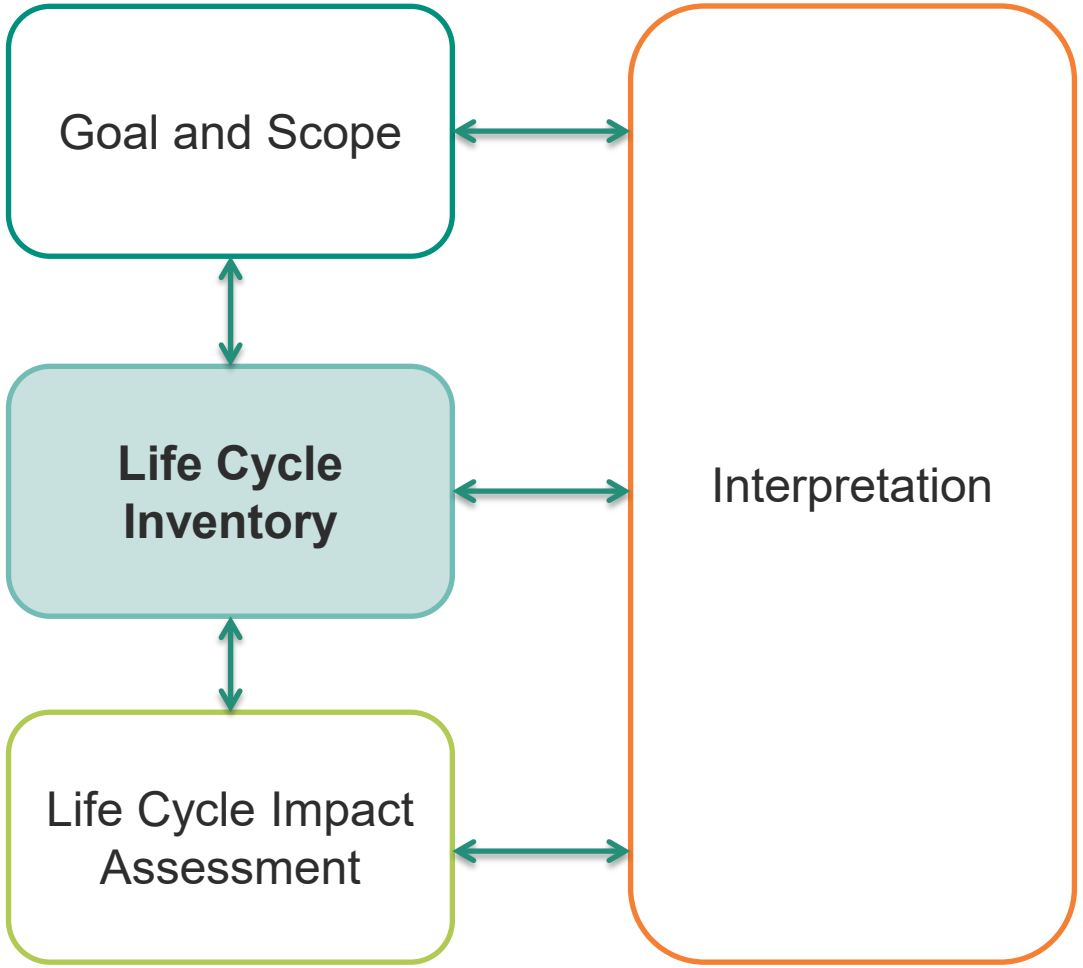
- Product system(s) to be studied
- Function(s) of the product system(s)
- **Functional unit**
- **System boundary**
- Allocation procedures
- LCIA methodology and types of impacts
- Interpretation to be used
- Data requirements
- Assumptions
- Value choices and optional elements
- Limitations
- Data quality requirements
- Type of critical review, if any
- Type and format of the report required for the study

Out

Cookie goal and scope example

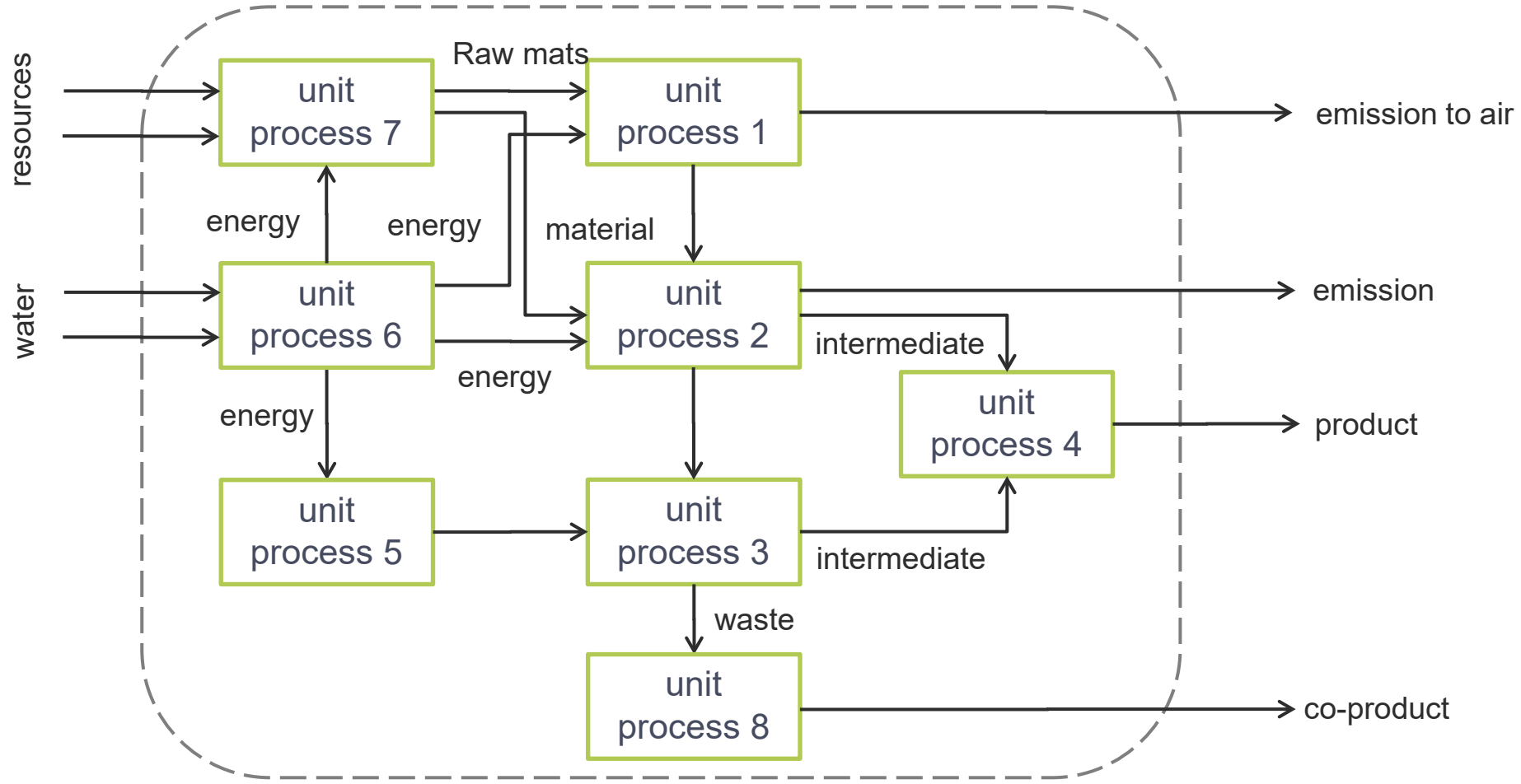
- Goal
  - Measure the total environmental impacts of my favorite treat, identify the contribution of each ingredient, and understand the hot spots
- Scope
  - Product: Chocolate Chip Cookies
  - Function: Provide unfettered joy in a small portable package
  - Functional Unit: 1 dozen cookies, consumed
  - System Boundary: Cradle to Grave
  - …

Phase 2 – Life Cycle Inventory



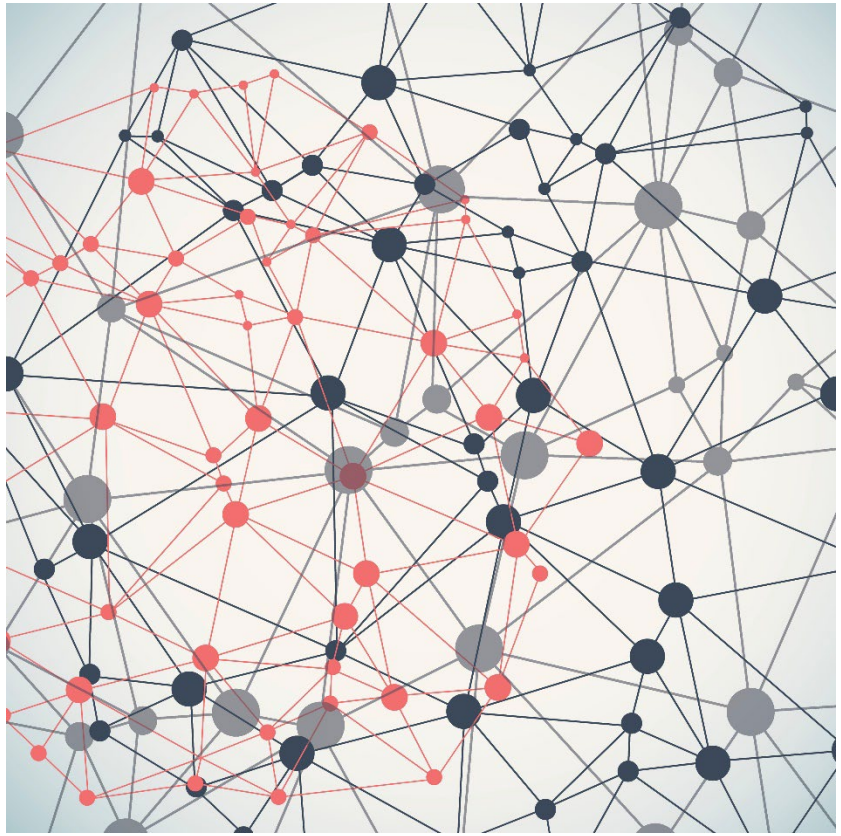
Based on ISO Standards 14040 and 14044

System boundary defines Life Cycle Inventory



Example of a "cradle-to-gate" product system and boundary

Data sources



Primary data: collected directly from the process operators

Sources for primary data:

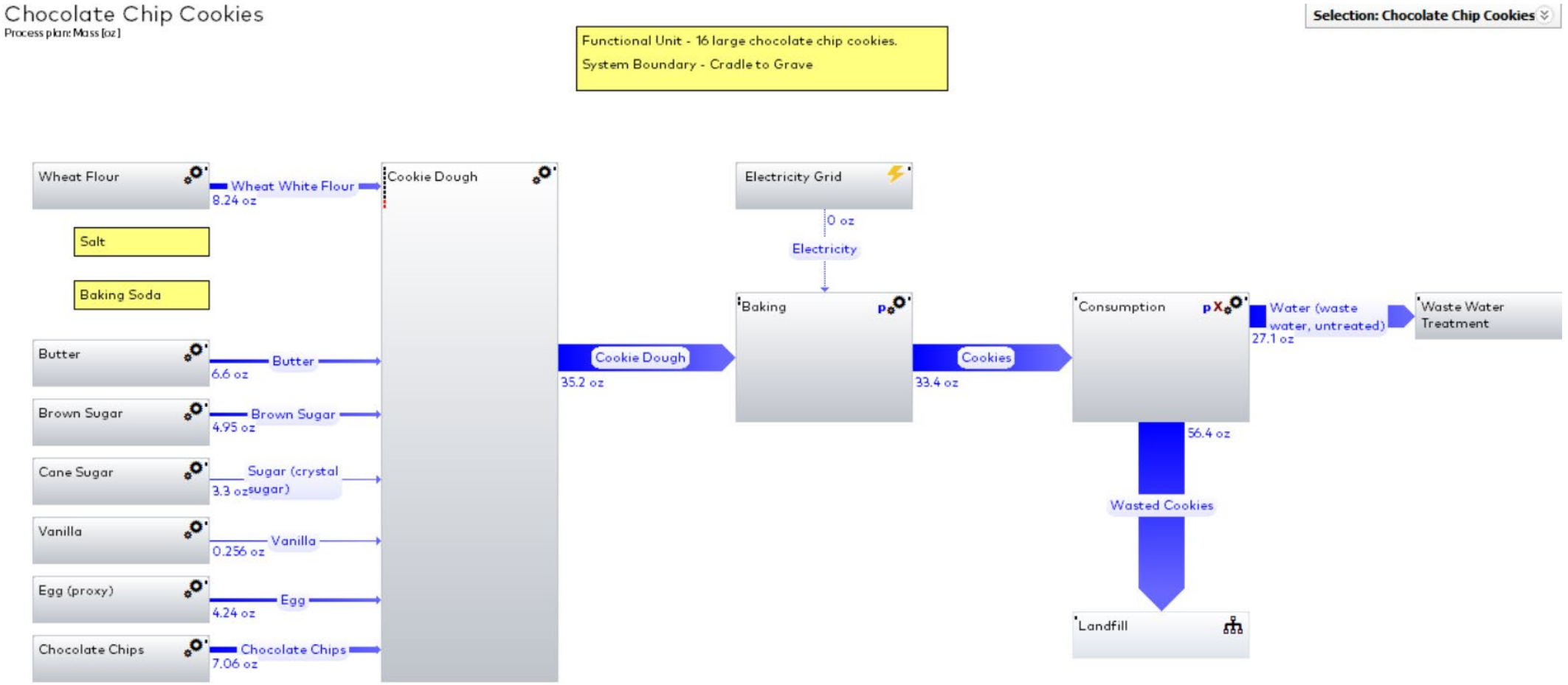
- Energy and raw material accounting
- Process flow diagrams
- Design documents - bills of materials
- Emission reporting
- Financial reporting
- Equipment specs
- Technical experts

Data sources

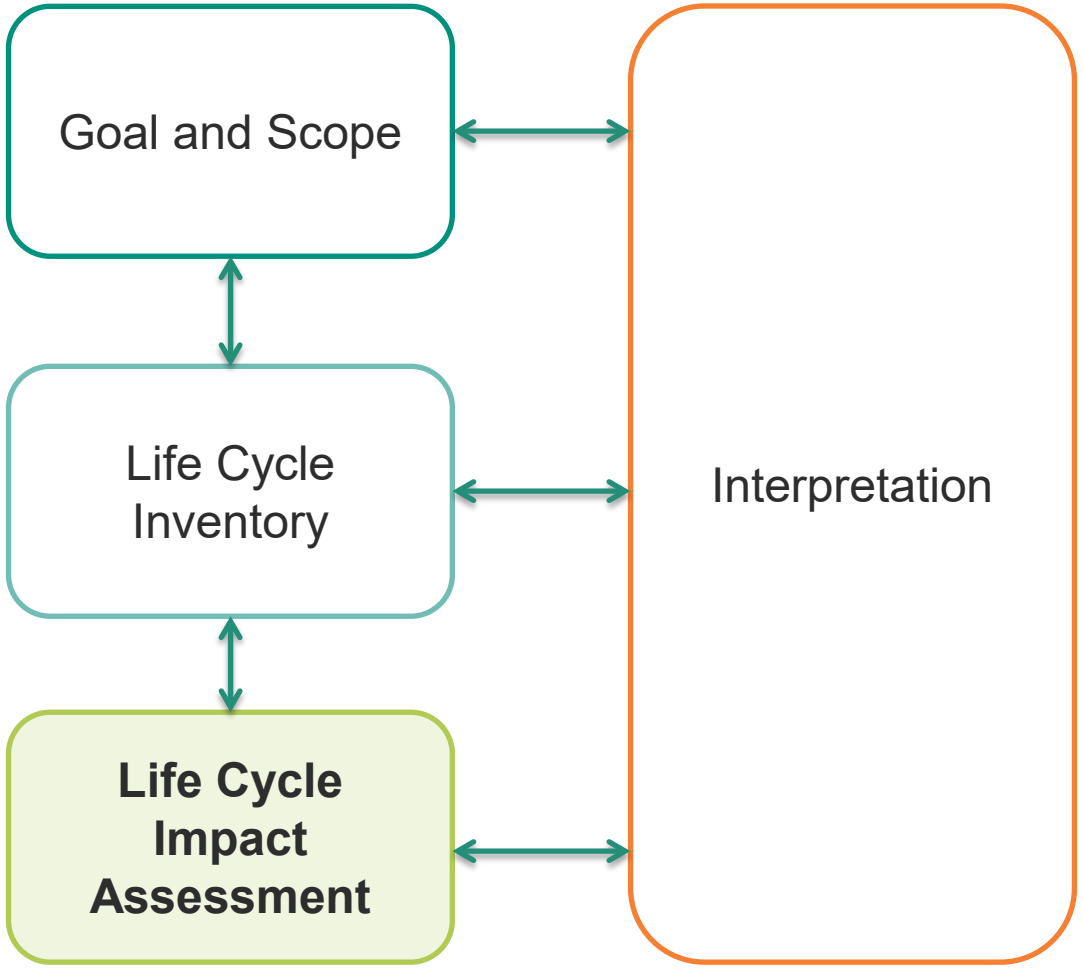
Secondary data: all publicly available data

- LCI databases / LCA software: Ecoinvent, GaBi, USLCI, ELCD
- Industry associations: WorldSteel, AA, ACC, PlasticsEurope, NAIMA, NRMCA
- Other published LCAs
- Environmental Product Declarations
- Ullmann's Encyclopedia of Industrial Chemistry
- Scientific journals
- BAT/BREF documents
- Patents
- National economic input-output tables

Cookie Life Cycle Inventory example



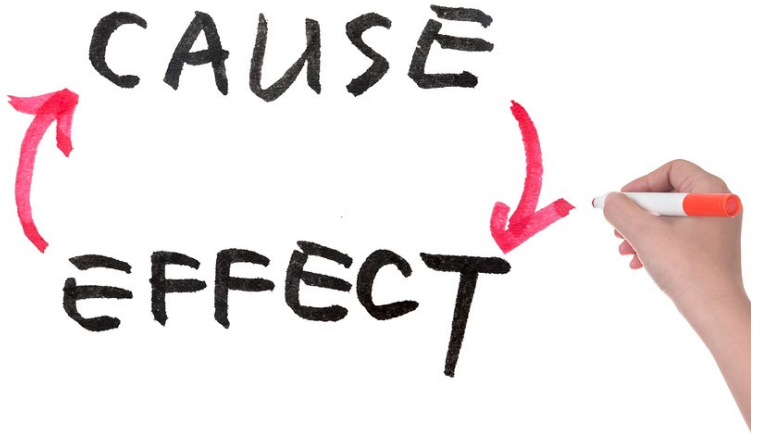
Phase 3 – Life Cycle Impact Assessment



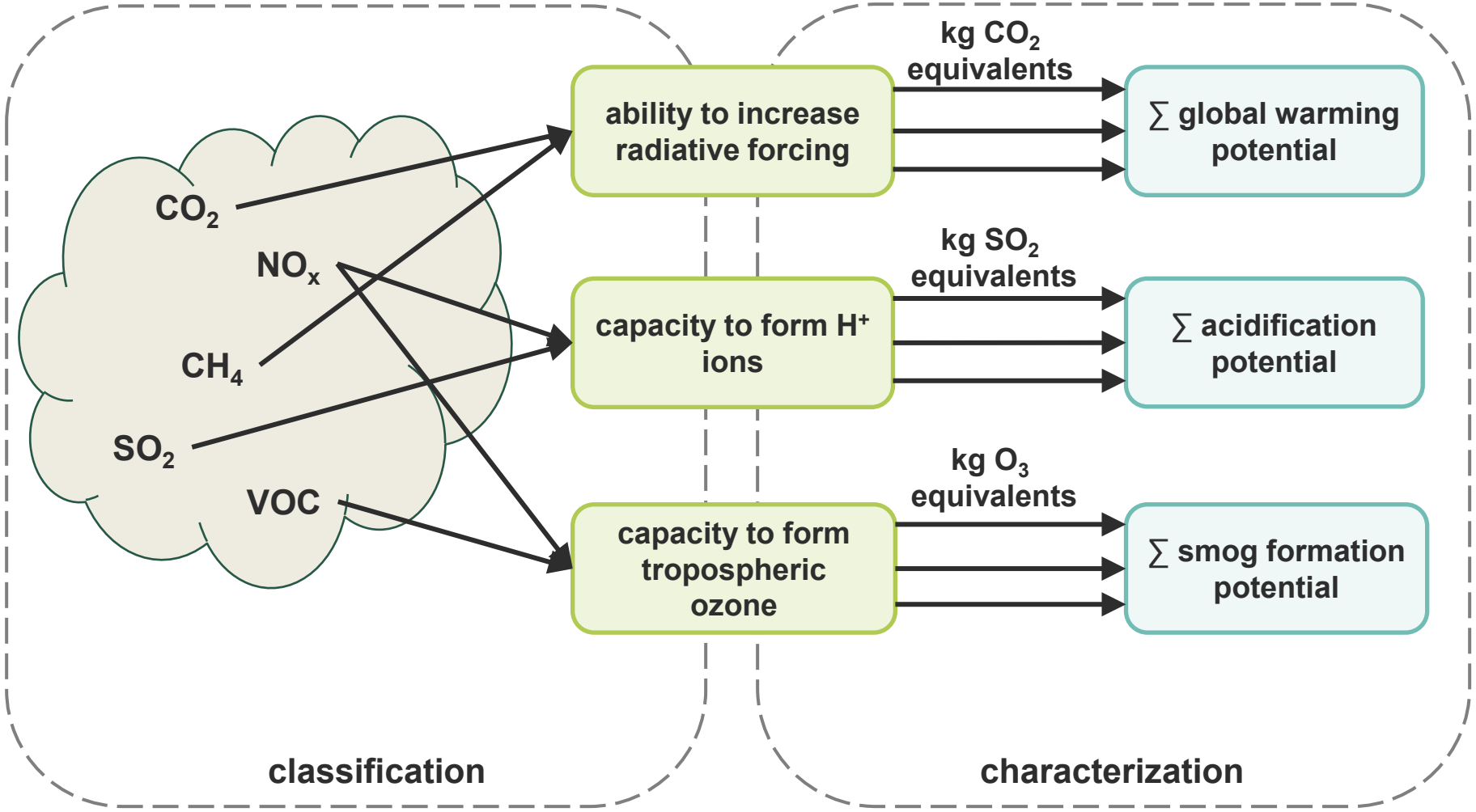
Based on ISO Standards 14040 and 14044

Life cycle impact assessment

Phase of life cycle assessment aimed at understanding and evaluating the magnitude and significance of the potential environmental impacts for a product system throughout the life cycle of the product (ISO 14044, 3.4).



From emission to potential impacts



How does the math work?

LCI Values							
Outputs	Value	Unit		**Characterization Factors**		**Impact Potential (GWP)**	**Unit**
Carbon Dioxide	50	kg	*	1	=	50	kg CO2-equiv.
Methane	2	kg	*	30	=	60	kg CO2-equiv.
Nitrous Oxide	1	kg	*	265	=	265	kg CO2-equiv.
Inputs	Value	Unit					
Carbon Dioxide	-60	kg	*	1	=	-60	kg CO2-equiv.
					=	**315**	kg CO2-equiv.

Must be done for each indicator/impact category!

Life cycle impact assessment categories


Global Warming Potential


Acidification Potential


Eutrophication Potential

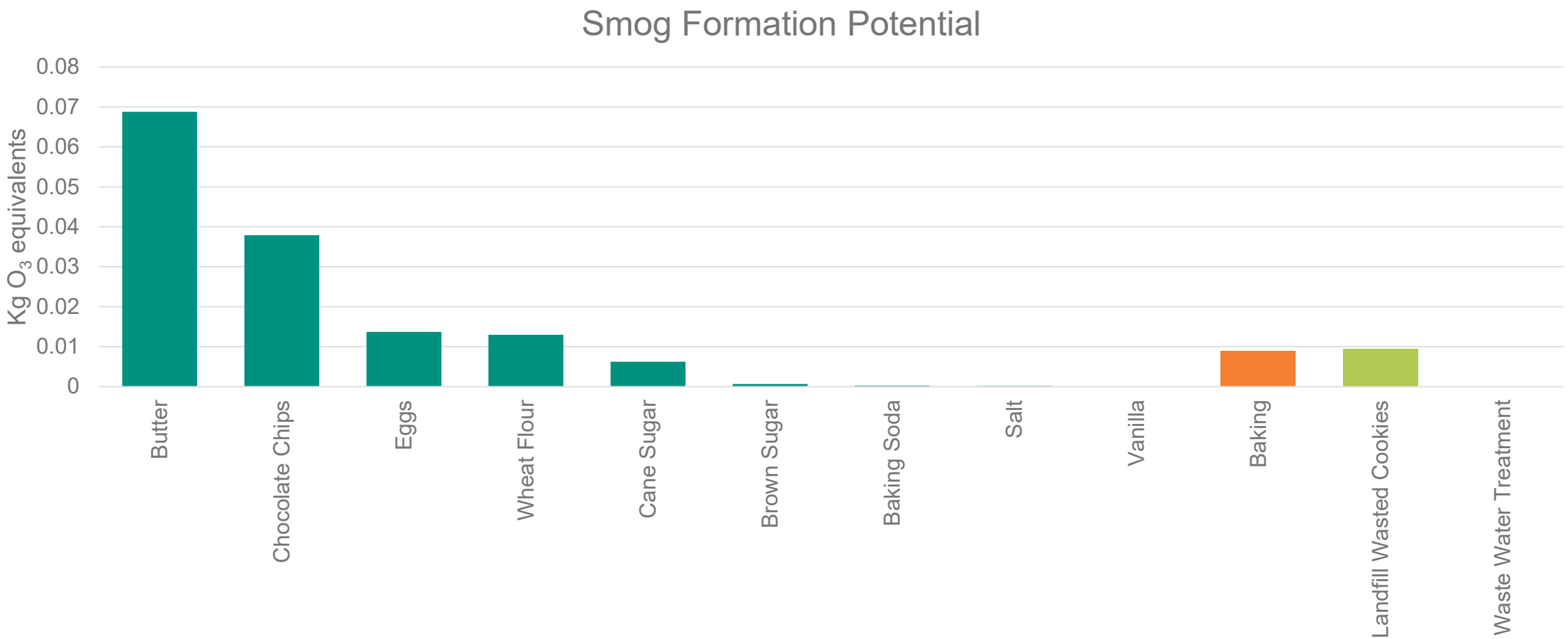

Smog Creation Potential


Ozone Depletion Potential

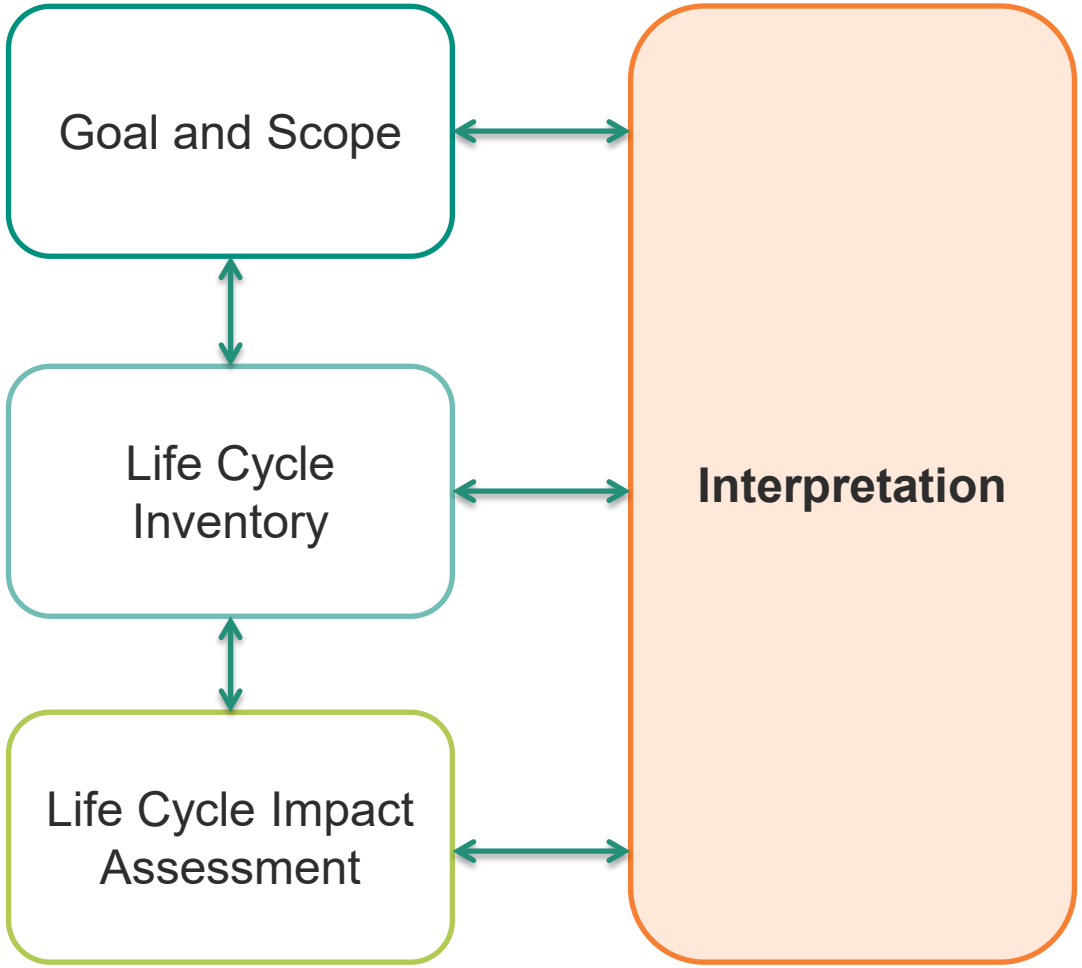

Water Scarcity


Primary Energy Demand

Cookie life cycle impact assessment example



Phase 4 – Interpretation



Based on ISO Standards 14040 and 14044

Interpretation

- The key findings of the study
- Any assumptions, limitations, or significant issues
- Data quality assessment
- Conclusions and recommendations
- Use and application(s) of results
- Next Steps (iteration)

Limitations

LCA addresses potential environmental impacts; **LCA does not predict absolute or precise environmental impacts** for several reasons**:**

- The relative expression of potential environmental impacts to a reference unit,
- The integration of environmental data over space and time,
- The inherent uncertainty in modeling of environmental impacts, and
- The fact that some possible environmental impacts are clearly future impacts

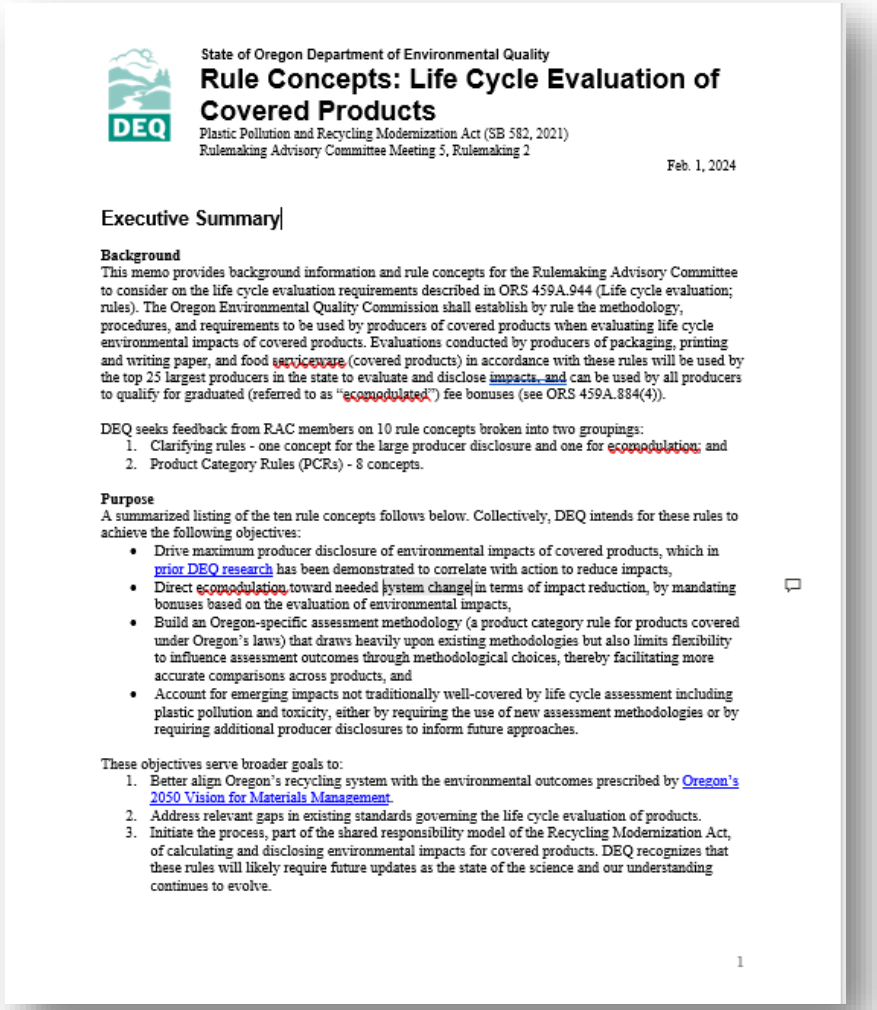
(ISO 14040, section 4.3)

Break

Goals and objectives of the rule concepts

- Goals
  - Implement the 2050 vision
  - Address gaps in LCA
  - Initiate the process of disclosure
- Objectives
  - Drive maximum disclosure
  - Drive system change
  - Enable accurate comparisons
  - Account for emergent impacts

Rule Concept: Life Cycle Evaluation of Covered Products



State of Oregon Department of Environmental Quality

Rule Concepts: Life Cycle Evaluation of Covered Products

Plastic Pollution and Recycling Modernization Act (SB 582, 2021)
Rulemaking Advisory Committee Meeting 5, Rulemaking 2

Feb. 1, 2024

Executive Summary

Background
This memo provides background information and rule concepts for the Rulemaking Advisory Committee to consider on the life cycle evaluation requirements described in ORS 459A.944 (Life cycle evaluation; rules). The Oregon Environmental Quality Commission shall establish by rule the methodology, procedures, and requirements to be used by producers of covered products when evaluating life cycle environmental impacts of covered products. Evaluations conducted by producers of packaging, printing and writing paper, and food serviceware (covered products) in accordance with these rules will be used by the top 25 largest producers in the state to evaluate and disclose impacts, and can be used by all producers to qualify for graduated (referred to as "ecomodulated") fee bonuses (see ORS 459A.884(4)).

DEQ seeks feedback from RAC members on 10 rule concepts broken into two groupings:
1. Clarifying rules - one concept for the large producer disclosure and one for ecomodulation; and
2. Product Category Rules (PCRs) - 8 concepts.

Purpose
A summarized listing of the ten rule concepts follows below. Collectively, DEQ intends for these rules to achieve the following objectives:
- Drive maximum producer disclosure of environmental impacts of covered products, which in prior DEQ research has been demonstrated to correlate with action to reduce impacts,
- Direct ecomodulation toward needed system change in terms of impact reduction, by mandating bonuses based on the evaluation of environmental impacts,
- Build an Oregon-specific assessment methodology (a product category rule for products covered under Oregon's laws) that draws heavily upon existing methodologies but also limits flexibility to influence assessment outcomes through methodological choices, thereby facilitating more accurate comparisons across products, and
- Account for emerging impacts not traditionally well-covered by life cycle assessment including plastic pollution and toxicity, either by requiring the use of new assessment methodologies or by requiring additional producer disclosures to inform future approaches.

These objectives serve broader goals to:
1. Better align Oregon's recycling system with the environmental outcomes prescribed by Oregon's 2050 Vision for Materials Management.
2. Address relevant gaps in existing standards governing the life cycle evaluation of products.
3. Initiate the process, part of the shared responsibility model of the Recycling Modernization Act, of calculating and disclosing environmental impacts for covered products. DEQ recognizes that these rules will likely require future updates as the state of the science and our understanding continues to evolve.

1

Technical process

Rulemaking Advisory Panel

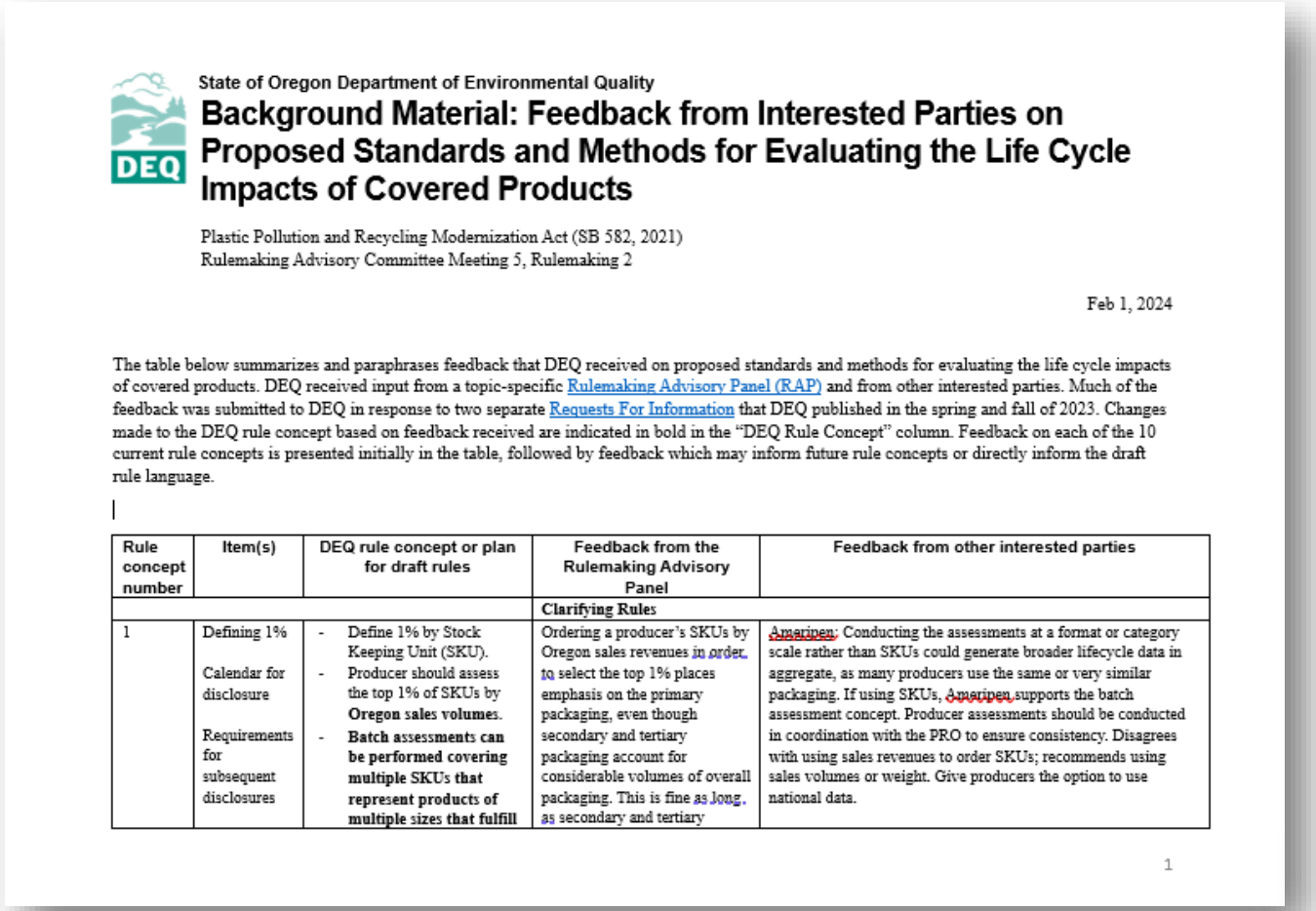
- Roland Geyer, Professor, University of California at Santa Barbara

- Simon Hann, Principal Consultant, Eunomia Research and Consulting Ltd (UK)

- Christoph Koffler, PhD - Technical Director Americas, Sphera Solutions, Inc.

- Emily Wynne, Sustainability Consultant, Quantis

Background Material: RAP and stakeholder feedback



State of Oregon Department of Environmental Quality

Background Material: Feedback from Interested Parties on Proposed Standards and Methods for Evaluating the Life Cycle Impacts of Covered Products

Plastic Pollution and Recycling Modernization Act (SB 582, 2021)
Rulemaking Advisory Committee Meeting 5, Rulemaking 2

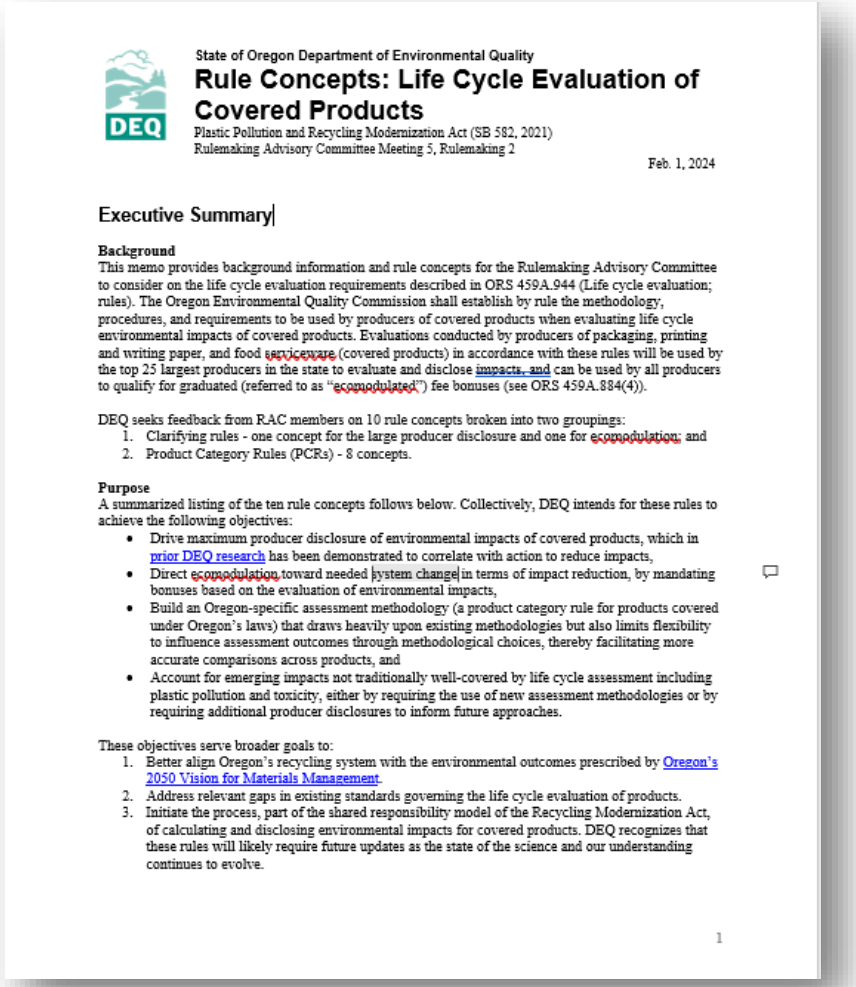
Feb 1, 2024

The table below summarizes and paraphrases feedback that DEQ received on proposed standards and methods for evaluating the life cycle impacts of covered products. DEQ received input from a topic-specific Rulemaking Advisory Panel (RAP) and from other interested parties. Much of the feedback was submitted to DEQ in response to two separate Requests For Information that DEQ published in the spring and fall of 2023. Changes made to the DEQ rule concept based on feedback received are indicated in bold in the "DEQ Rule Concept" column. Feedback on each of the 10 current rule concepts is presented initially in the table, followed by feedback which may inform future rule concepts or directly inform the draft rule language.

Rule concept number	Item(s)	DEQ rule concept or plan for draft rules	Feedback from the Rulemaking Advisory Panel	Feedback from other interested parties
			Clarifying Rules	
1	Defining 1% Calendar for disclosure Requirements for subsequent disclosures	- Define 1% by Stock Keeping Unit (SKU). - Producer should assess the top 1% of SKUs by **Oregon sales volumes**. - **Batch assessments can be performed covering multiple SKUs that represent products of multiple sizes that fulfill**	Ordering a producer's SKUs by Oregon sales revenues in order to select the top 1% places emphasis on the primary packaging, even though secondary and tertiary packaging account for considerable volumes of overall packaging. This is fine as long as secondary and tertiary	Ameripen: Conducting the assessments at a format or category scale rather than SKUs could generate broader lifecycle data in aggregate, as many producers use the same or very similar packaging. If using SKUs, Ameripen supports the batch assessment concept. Producer assessments should be conducted in coordination with the PRO to ensure consistency. Disagrees with using sales revenues to order SKUs; recommends using sales volumes or weight. Give producers the option to use national data.

1

I. Clarifying rules on the large producer disclosure requirement (ORS 459A.944)



State of Oregon Department of Environmental Quality

Rule Concepts: Life Cycle Evaluation of Covered Products

Plastic Pollution and Recycling Modernization Act (SB 582, 2021)
Rulemaking Advisory Committee Meeting 5, Rulemaking 2

Feb. 1, 2024

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1

Defining 1%

Statute requires that large producers evaluate and disclose environmental impacts for 1% of their covered products sold into Oregon.

DEQ proposes to require large producers to:

- Disclose environmental impacts of the top 1% of their Stock Keeping Units by sales volumes biennially starting Dec. 31, 2026.
- Every two years after, producers must disclose impacts for the next 1% of SKUs
- No SKU can be reassessed during any ten-year period

Calendar for large producer disclosure

The first 1% batch of assessment and disclosure due

Dec. 31, 2026

June 30, 2027

Producers not among the top 25 producers by interim market share published in September 2025, but appeared in the updated ranking published in August 2026 will be given an additional six months

Next 1% batch of assessment and disclosure due

Dec. 31, 2028

Dec. 31, 2030

Next 1% batch of assessment and disclosure due

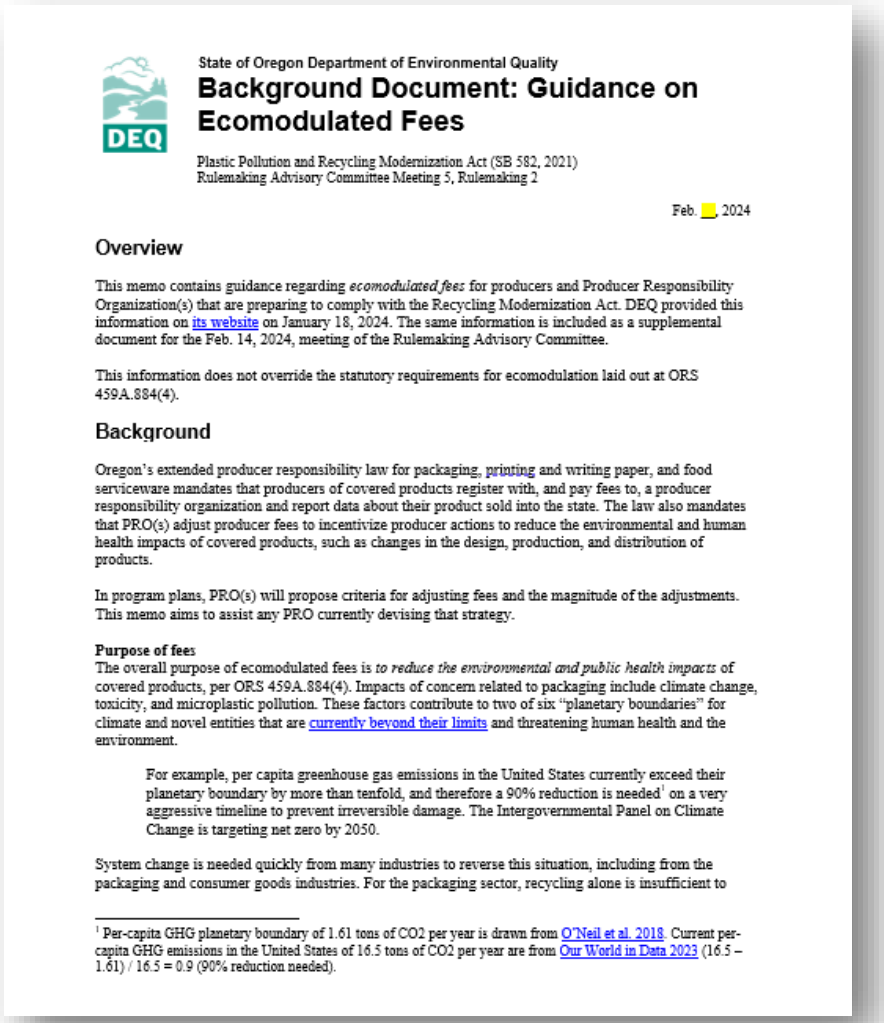
Discussion prompts

1.1) How can the allowance for batch assessments be effectively designed to limit the products covered by a batch assessment to those that are part of the same product line or family?

1.2) Are there large producers for whom the SKU-based approach would not work and for which an alternative approach should be defined in rule?

1.3) Are Oregon sales volumes an appropriate proxy for relative environmental impact of a particular producer's product?

Background document: Guidance on Ecomodulated Fees



State of Oregon Department of Environmental Quality

Background Document: Guidance on Ecomodulated Fees

Plastic Pollution and Recycling Modernization Act (SB 582, 2021)
Rulemaking Advisory Committee Meeting 5, Rulemaking 2

Feb. __, 2024

Overview

This memo contains guidance regarding *ecomodulated fees* for producers and Producer Responsibility Organization(s) that are preparing to comply with the Recycling Modernization Act. DEQ provided this information on its website on January 18, 2024. The same information is included as a supplemental document for the Feb. 14, 2024, meeting of the Rulemaking Advisory Committee.

This information does not override the statutory requirements for ecomodulation laid out at ORS 459A.884(4).

Background

Oregon's extended producer responsibility law for packaging, printing and writing paper, and food serviceware mandates that producers of covered products register with, and pay fees to, a producer responsibility organization and report data about their product sold into the state. The law also mandates that PRO(s) adjust producer fees to incentivize producer actions to reduce the environmental and human health impacts of covered products, such as changes in the design, production, and distribution of products.

In program plans, PRO(s) will propose criteria for adjusting fees and the magnitude of the adjustments. This memo aims to assist any PRO currently devising that strategy.

Purpose of fees
The overall purpose of ecomodulated fees is *to reduce the environmental and public health impacts* of covered products, per ORS 459A.884(4). Impacts of concern related to packaging include climate change, toxicity, and microplastic pollution. These factors contribute to two of six "planetary boundaries" for climate and novel entities that are currently beyond their limits and threatening human health and the environment.

> For example, per capita greenhouse gas emissions in the United States currently exceed their planetary boundary by more than tenfold, and therefore a 90% reduction is needed[1] on a very aggressive timeline to prevent irreversible damage. The Intergovernmental Panel on Climate Change is targeting net zero by 2050.

System change is needed quickly from many industries to reverse this situation, including from the packaging and consumer goods industries. For the packaging sector, recycling alone is insufficient to

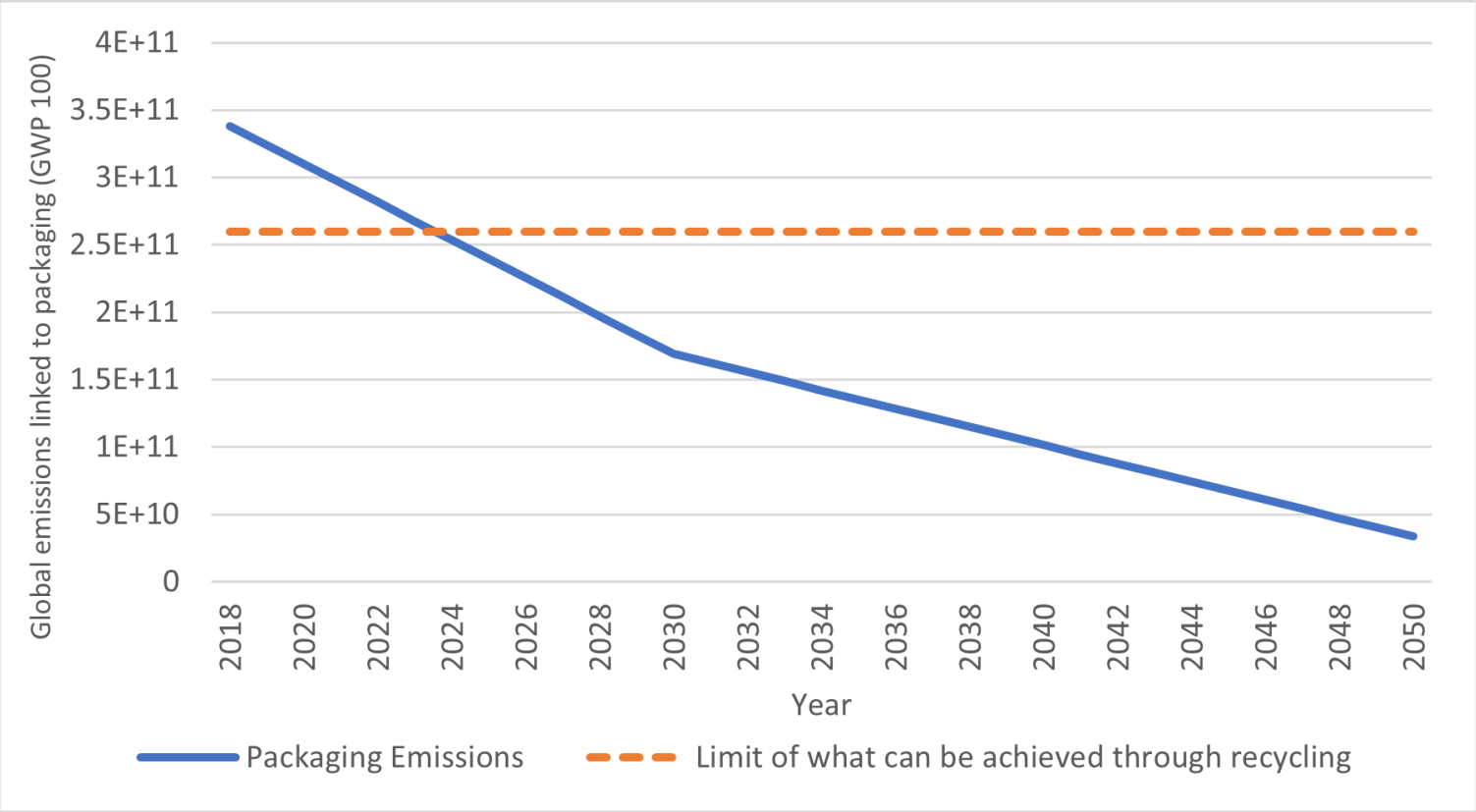
[1] Per-capita GHG planetary boundary of 1.61 tons of CO_2 per year is drawn from O'Neil et al. 2018. Current per-capita GHG emissions in the United States of 16.5 tons of CO_2 per year are from Our World in Data 2023 (16.5 – 1.61) / 16.5 = 0.9 (90% reduction needed).

Purpose of fees

Six planetary boundaries exceeded in 2023

- Climate Change
- Novel entities (including microplastics)
- Biosphere Integrity
- Land system change
- Freshwater change
- Biogeochemical flows

Strategies to reduce impacts of packaging



System change needed: 90% reduction in GHG (blue trendline = roadmap)

Recycling can deliver: 31% reduction in GHG (orange)

Strategies to reduce impacts of packaging

- Clean-energy production and reuse systems
- Reducing packaging to minimum necessary
- Design changes

Recommendation

- Incorporate DEQ's rules for life cycle evaluation
- Grant, at a minimum, as many malus fees (penalties) as bonus fees
- Increase the magnitude of fee adjustments over time

Rationale: Where does recyclability fit in?

In establishing the criteria for the graduated fee structure, a PRO must consider factors that include, but are not limited to:

a) The post-consumer content of the material, if the use of post consumer content in the covered product is not prohibited by federal law

b) The product-to-package ratio

c) The producer's choice of material

d) Life cycle environmental impacts, as demonstrated by an evaluation performed in accordance with ORS 459A.944 (Life cycle evaluation)

e) The recycling rate of the material relative to the recycling rate of other covered products

Rationale: Attributes research

Well-intentioned purchasing decisions to reduce environmental impacts and conserve resources are often rely on attributes such as recycled content. However, relying on attributes alone may lead to decisions that have unintended and regrettable outcomes.

Summary: DEQ prioritizes life cycle impacts

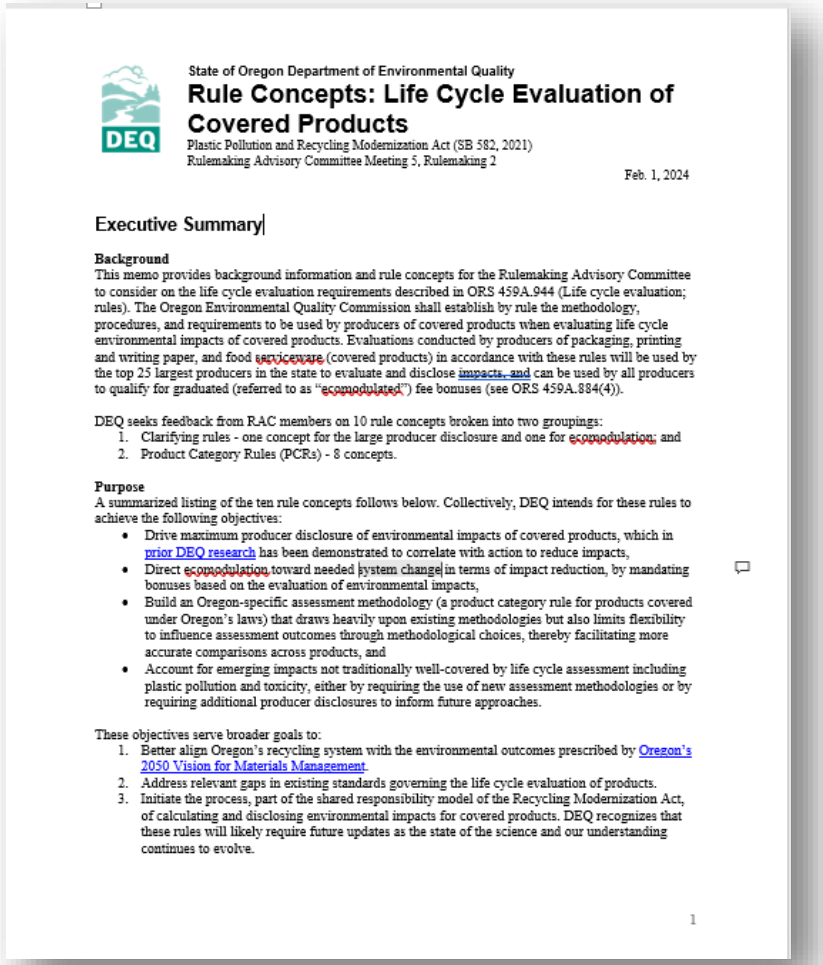
a)	Post-consumer recycled content	→	Meaningful correlation but only when comparing within the same material
b)	Product-to-package ratio	→	Meaningful correlation, but ideally optimization rather than minimization is incentivized
c)	Producer's choice of material	→	Meaningful correlation, but need to demonstrate impacts per material
d)	Life cycle environmental impacts	→	Meaningful correlation if methods of measurement are comprehensive and standardized. Can encompass the other four factors.
e)	Recycling rate	→	Unclear how recycling rate correlates when comparing across materials

Discussion prompts

DEQ is recommending that PROs emphasize life cycle environmental impacts over the other four factors that PROs are required to take under consideration in developing their ecomodulation approach.

- Do you support this recommendation?
- Can the other factors be accounted for through a focus on life cycle environmental impacts?

II. Clarifying rules on ecomodulation (ORS 459A.844(4))



State of Oregon Department of Environmental Quality

Rule Concepts: Life Cycle Evaluation of Covered Products

Plastic Pollution and Recycling Modernization Act (SB 582, 2021)
Rulemaking Advisory Committee Meeting 5, Rulemaking 2

Feb. 1, 2024

Executive Summary

Background
This memo provides background information and rule concepts for the Rulemaking Advisory Committee to consider on the life cycle evaluation requirements described in ORS 459A.944 (Life cycle evaluation; rules). The Oregon Environmental Quality Commission shall establish by rule the methodology, procedures, and requirements to be used by producers of covered products when evaluating life cycle environmental impacts of covered products. Evaluations conducted by producers of packaging, printing and writing paper, and food serviceware (covered products) in accordance with these rules will be used by the top 25 largest producers in the state to evaluate and disclose impacts, and can be used by all producers to qualify for graduated (referred to as "ecomodulated") fee bonuses (see ORS 459A.884(4)).

DEQ seeks feedback from RAC members on 10 rule concepts broken into two groupings:
1. Clarifying rules - one concept for the large producer disclosure and one for ecomodulation; and
2. Product Category Rules (PCRs) - 8 concepts.

Purpose
A summarized listing of the ten rule concepts follows below. Collectively, DEQ intends for these rules to achieve the following objectives:
- Drive maximum producer disclosure of environmental impacts of covered products, which in prior DEQ research has been demonstrated to correlate with action to reduce impacts,
- Direct ecomodulation toward needed system change in terms of impact reduction, by mandating bonuses based on the evaluation of environmental impacts,
- Build an Oregon-specific assessment methodology (a product category rule for products covered under Oregon's laws) that draws heavily upon existing methodologies but also limits flexibility to influence assessment outcomes through methodological choices, thereby facilitating more accurate comparisons across products, and
- Account for emerging impacts not traditionally well-covered by life cycle assessment including plastic pollution and toxicity, either by requiring the use of new assessment methodologies or by requiring additional producer disclosures to inform future approaches.

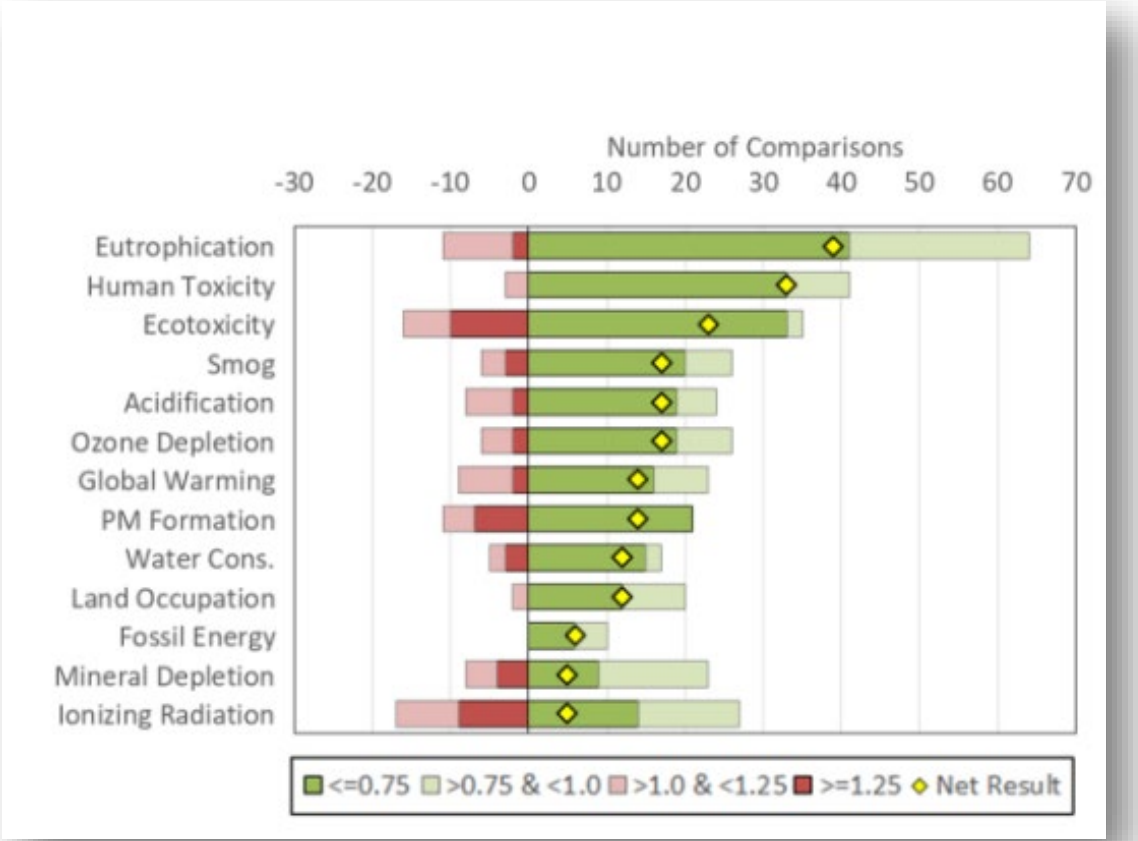
These objectives serve broader goals to:
1. Better align Oregon's recycling system with the environmental outcomes prescribed by Oregon's 2050 Vision for Materials Management.
2. Address relevant gaps in existing standards governing the life cycle evaluation of products.
3. Initiate the process, part of the shared responsibility model of the Recycling Modernization Act, of calculating and disclosing environmental impacts for covered products. DEQ recognizes that these rules will likely require future updates as the state of the science and our understanding continues to evolve.

1

Proposal for two bonuses

PRO(s) must make two ecomodulation bonuses available to member producers:

- A **simple bonus** for voluntary disclosures capped at 100 SKUs per producer
- A **larger bonus** for producer actions that achieve “substantial impact reduction” measured using the product category rules



Substantial impact reduction bonus - tiers

≥10% reduction, tiers, comparison is not across producers

For example:

- Tier 1 - between 10-20% reduction
- Tier 2 - between 20-30% reduction
- Tier 3 - between 30-40% reduction
- Tier 4 - between 40-50% reduction
- Tier 5 - > 50% reduction

Discussion prompts

2.1 Should there be a limit on how long ago a significant impact reduction action has been taken by a producer in order to qualify for a bonus? And for how many years should a significant impact reduction bonus be awarded to a producer?

2.2 Is it acceptable to only reward impact reduction actions taken after the start date of the Act, rather than previous actions, and to reward producers in comparison with their own prior behavior rather than rewarding the best in class for a particular product type?

Impacts to consider

The 16 PEFCR impact categories are:

1. Climate change
2. ~~Ozone depletion~~
3. ~~Human toxicity, cancer~~
4. Human toxicity, non-cancer
5. Particulate matter
6. Ionizing radiation, human health
7. Photochemical ozone formation, human health
8. Acidification
9. Eutrophication, terrestrial
10. Eutrophication, freshwater
11. ~~Eutrophication, marine~~
12. Ecotoxicity, freshwater
13. Land use
14. Water use
15. Resources use, minerals and metals
16. Resource use, fossils

Impacts to consider

1. Climate change
2. Ozone depletion
3. Particulate matter
4. Ionizing radiation, human health
5. Photochemical ozone formation, human health
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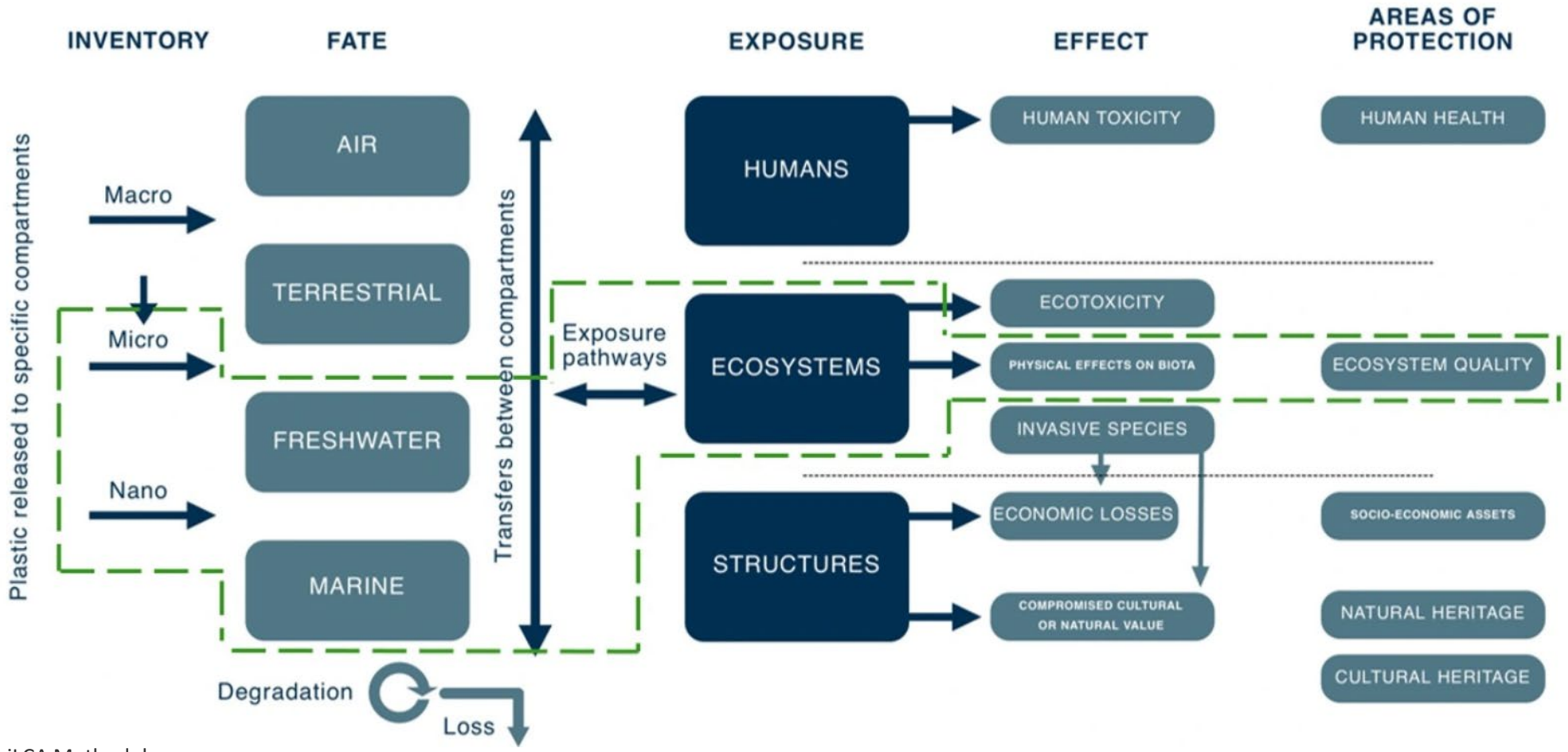
8. Eutrophication, freshwater
9. Eutrophication, marine
10. Land use
11. Water use
12. Resources use, minerals and metals
13. Resource use, fossils
14. Physical impacts of plastic on aquatic biota
    -- NEW --

MariLCA method



Source: MariLCA Methodology

Developing a customized weighting for plastics

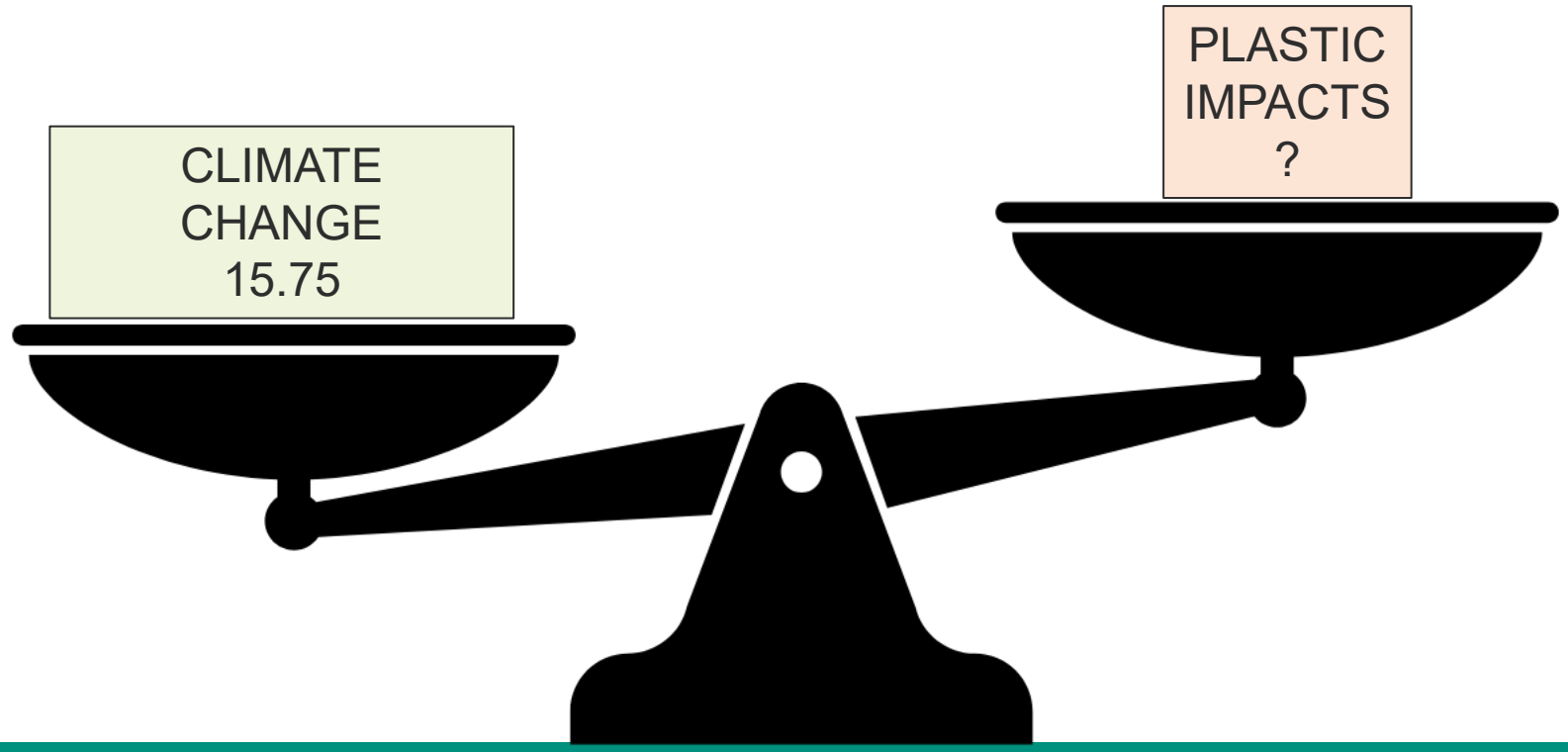
The recommended weighting set, robustness factors and final weighting factors excluding toxicity-related impact categories[1].

	Aggregated weighting set	Robustness factors	Intermediate Coefficients	Final weighting factors (incl. robustness)
	(A)	(B)	C=A*B	C scaled to 100
Climate change	15.75	0.87	13.65	**22.19**
Ozone depletion	6.92	0.60	4.15	**6.75**
Particulate matter	6.77	0.87	5.87	**9.54**
Ionizing radiation, human health	7.07	0.47	3.30	**5.37**
Photochemical ozone formation, human health	5.88	0.53	3.14	**5.10**
Acidification	6.13	0.67	4.08	**6.64**
Eutrophication, terrestrial	3.61	0.67	2.40	**3.91**
Eutrophication, freshwater	3.88	0.47	1.81	**2.95**
Eutrophication, marine	3.59	0.53	1.92	**3.12**
Land use	11.10	0.47	5.18	**8.42**
Water use	11.89	0.47	5.55	**9.03**
Resource use, minerals and metals	8.28	0.60	4.97	**8.08**
Resource use, fossils	9.14	0.60	5.48	**8.92**
Physical impacts of plastics on aquatic biota	X	Y		

And proportionally adjust downward the final factors for all other impacts to fit plastic in

Need to set X and Y in rule →

Weighting plastic



Weighting considerations

- *Spread* (geographic scale) of impact: Localized -- Global
- *Time span of impact* <1 month -- >100 years
- *Reversibility*: natural and instantaneous -- irreversible
- *Level of impact compared to carrying capacity*: <1% -- >200%
- *Severity of impact on human health*: none – high mortality or permanent disease
- *Severity of impact on ecosystem quality*: none – severe
- *Severity of impact on resource availability*: none – severe

Discussion prompts

2.3 For the substantial impact reduction bonus, how should the impact of plastics on ecosystems be weighted alongside other impact categories? Is it more or less impactful than climate change? How would you rank it?

2.4 Taken together with all the PCR rule concepts, can you predict any negative incentives that could award a bonus to a producer for actions that should not be rewarded?

Public Input Period

Product Category Rules

Rule Concepts III-X for the Life Cycle Evaluation of Covered Products

III. Core product category rules

- Purpose
  - Establish methodological standards for evaluation and disclosure of environmental impacts
- Approach
  - Draw from Existing Standards
  - Address Gaps
  - Test and revise

Oregon Product Category Rules

What's in a core product category rule?

Cookie goal and scope example

- Goal
  - Measure the total environmental impacts of my favorite treat, identify the contribution of each ingredient, and understand the hot spots
- Scope
  - Product: Chocolate Chip Cookies
  - Function: Provide unfettered joy in a small portable package
  - Functional Unit: 1 dozen cookies, consumed
  - System Boundary: Cradle to Grave
  - …

The same things found in the Goal and Scope of an LCA study.

One tool in the toolbox

- LCA-based in first iteration
- Other tools and methods are not precluded
  - Risk Assessment
  - Alternatives Assessment
  - Embedded toxicants
  - Circularity Indicators
  - Materiality Assessment
  - Social tools – Environmental justice, ethnography, surveys, SLCA
  - Economic tools - Benefit Cost Analysis

Discussion prompts

3.1. Do you support the proposed approach of developing an Oregon-specific, general PCR for covered products under the RMA? What are the limitations or benefits of this approach?

3.2. Do you support the approach of beginning the program with requirements based solely in Life Cycle Assessment methodologies? Why or why not? What other tools or methods would you like to see included?

IV. Key PCR Aspect #1
Life Cycle Impact – Assessment

- Required
  - 16 PEFCR indicators
  - Single score/profile based on normalization and weighting
  - Waste Indicators (Haz/Non Haz)
- Additions
  - MariLCA*
  - Hazardous and Non-Hazardous waste
  - Embedded hazardous substances

Impacts to consider

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Impacts to consider

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Required – normalization and weighting

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Physical impacts of plastics on aquatic biota	**X**	**Y**		

- Allows for calculation of single score
- Attempts to balance trade-offs
- “Compensatory” approach across impacts assumed

Developing a customized weighting for plastics

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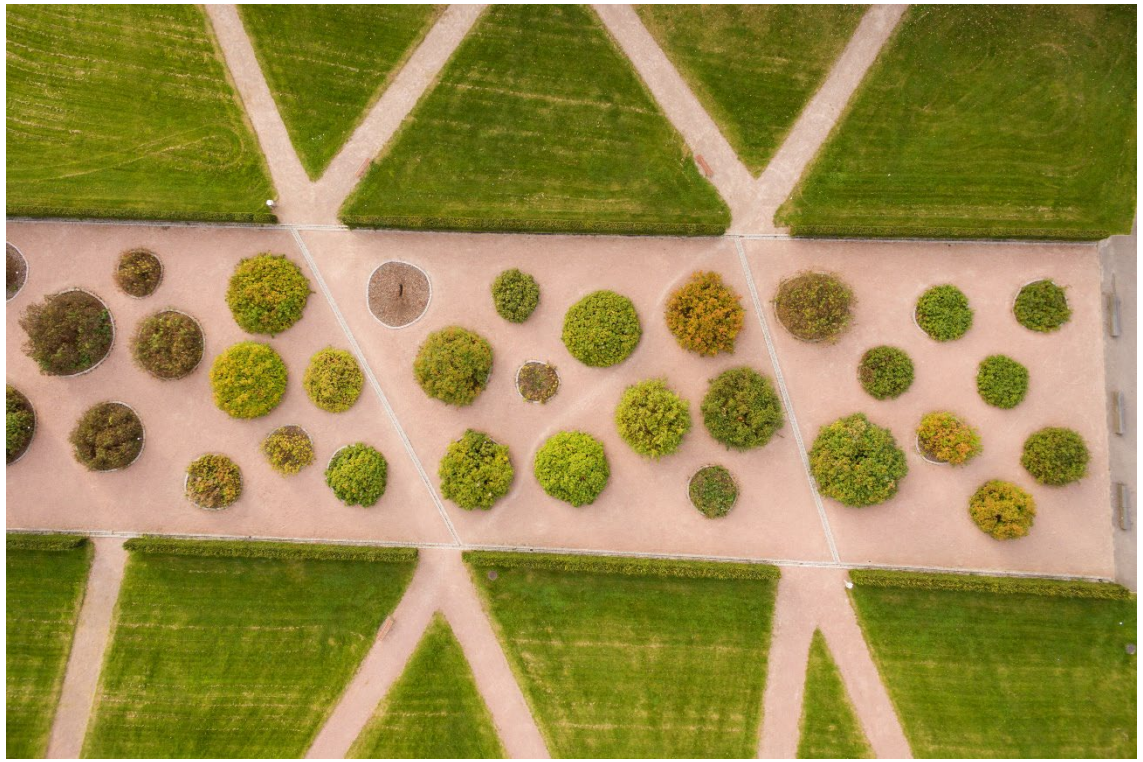
Physical impacts of plastics on aquatic biota	**3.5 - 8**	**Y**		**?**

And proportionally adjust downward the final factors for all other impacts to fit plastic in

Need to set X and Y in rule →

Optional impacts and methodologies



- S-LCA (Social LCA) indicators
- LCIA contextualized in Planetary Boundaries
- Natural capital accounting
- MariLCA plastic ecosystem impacts*

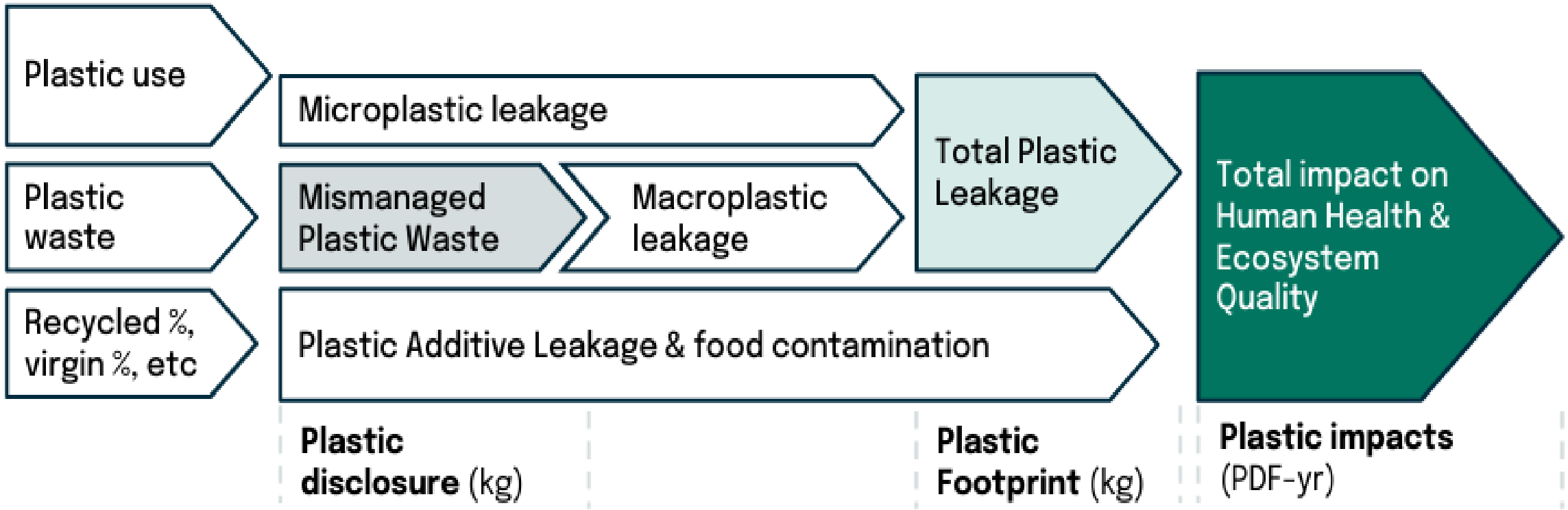
Discussion prompts

4.1. Does the approach to prescribe a set of impact factors and methodologies based on PEFCR make sense? What are the limitations or benefits of this approach?

4.2. The PEFCR methodology includes a weighting scheme, to try to make sense of multiple disparate impact categories in a single score. This weighting scheme, summarized on page 5 of Sala et al. 2018, was developed through a consensus-based survey of scientists and experts. Do you agree with the relative “importance” granted to each impact category through this weighting scheme? Why or why not?

4.3. Are the methodologies to evaluate emergent impacts sufficient or deficient? Should they be allowed to be optional?

V. Key PCR Aspect #2
Life Cycle Inventory – Plastic leakage



Source: Plastic Footprint Network

Discussion prompt

5.1. DEQ originally considered a requirement for primary and secondary data on plastic leakage but has removed it from this iteration due to the limited amount of such research and tracking currently being accomplished. Is it reasonable and necessary for producers of covered products to obtain and track this information?

VI. Key PCR Aspect #3 Life Cycle Inventory – Methane leakage

- Objective
  - Address potential underreporting of GHG emissions
- Approach
  - Secondary data
  - Rely on updated LCI databases

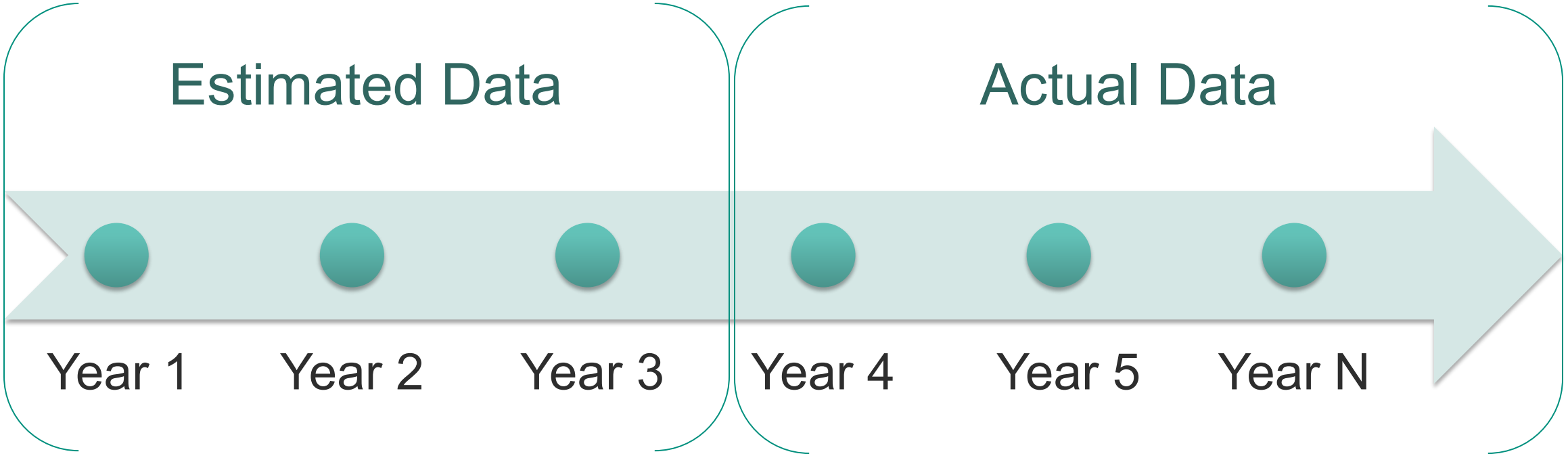
Discussion prompt

6.1. As part of the 2023 Request for Information process, DEQ previously proposed requiring reporting of primary and secondary data (e.g. actual plant data versus emissions factors) to explore this problem further and/or use of the MiQ Highwood Index to verify data. Does limiting the rule to requiring the latest data address the issue sufficiently?

VII. Key PCR Aspect #4
Evaluation of Covered Products that are Reusable

- Objective
  - Include specific rules for Reusables
- Approach
  - Specify key scope requirements for reusables
    - Use phase included
    - Return rate
    - Expected lifetime
  - Grace period (3 year) for ecomodulation bonus
  - Revised definition of “reusable product”

Grace period for ecomodulation bonus



Definition of “reusable product”

A covered product that is:

- Designed for reuse,
- Durable,
- Supported with adequate commercial or publicly-owned infrastructure to enable the highest/best reuse, and
- Actually reused

Discussion prompts

7.1. Is it appropriate to give reusable products a grace period during which projections rather than actual data may be used for key parameters?

7.2. Should “reusable product” be defined in a way that focuses specifically on products for which producers or government provide infrastructure for reuse, as opposed to products that customers reuse?

VIII.Key PCR Aspect #5 Sensitivity Analysis

- Objective
  - Report additional quantitative insights regarding required impact results
- Approach
  - Propose key variables for testing
  - Propose systematic procedure for identifying additional hot spots for testing
  - Prescribe statistical outputs from testing

Discussion prompts

8.1. Should DEQ require sensitivity analysis?

8.2. Should sensitivity analysis be used exclusively to communicate variability and to feed back into subsequent revisions of the PCR with respect related to variability across assessments? Or should sensitivity analysis be considered in the ecomodulation bonus for substantial impact reduction?

IX. Key PCR Aspect #6 - Recycling Allocation Procedures

- Objective
  - Flexibility in approach, with justification articulated through disclosure
- Approach
  - Adhere to existing standards
  - Must disclose approach and justify choice
  - Must be consistent, when applying for bonus
  - Must take into account quality/quantity factors

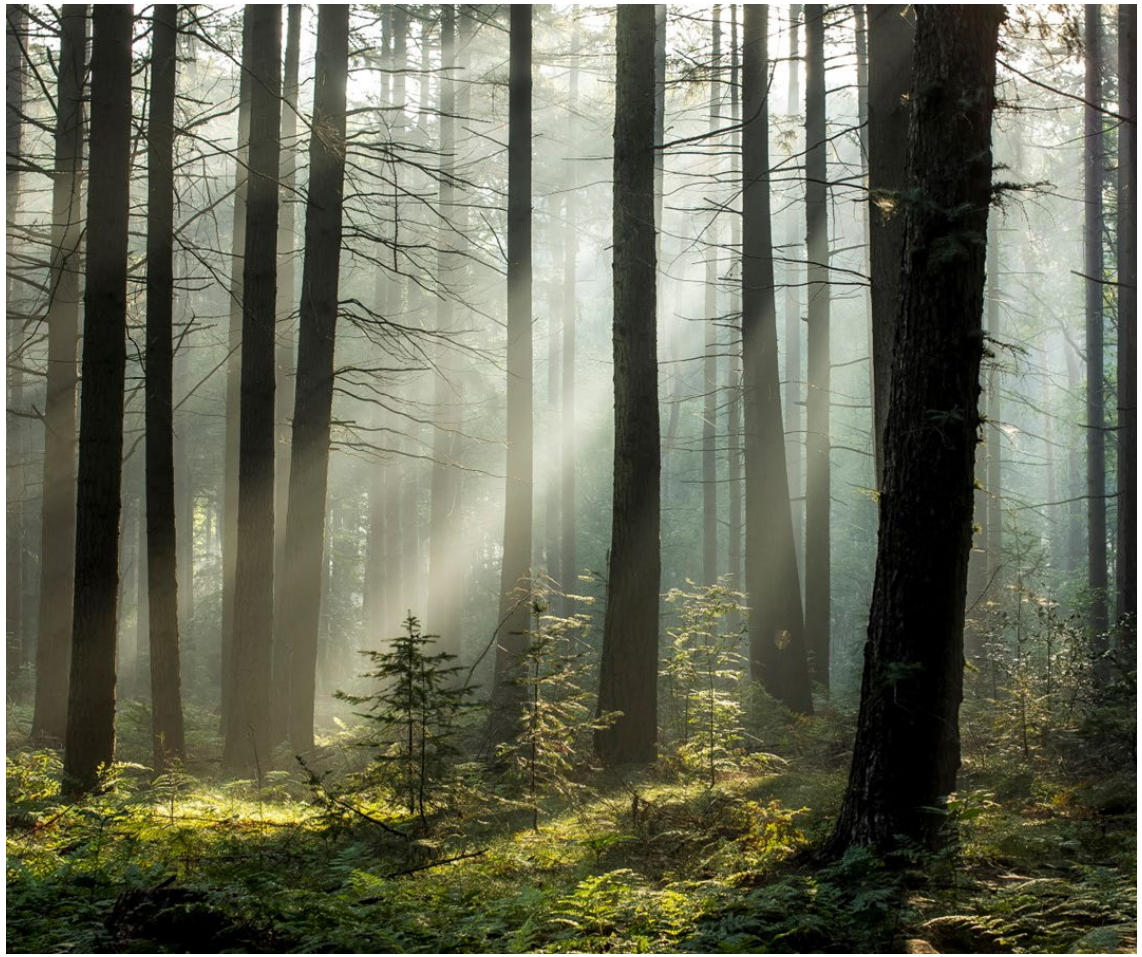
Discussion prompts

9.1. Should DEQ prescribe specific recycling allocation methodologies within these rules? If so, should there be a single methodology for all covered products, or should specific recycling allocation methodologies be set individually for each covered product? Alternatively, should these current rules allow producers to choose between different allocation methods?

9.2. Does any specificity or distinction need to be made for different types of recycling (e.g. mechanical vs. chemical)? Concerns have been raised regarding freedom of allocation when assessing life cycle impacts of chemical recycling.

X. Key PCR Aspect #7 - Biogenic Carbon Accounting

- Objective
  - Exclude biogenic carbon from required GWP reporting
- Approach
  - Reflect fast-moving/short-lived nature of covered products
  - Consistent with PEFCR method
  - Optional accounting/report as “additional environmental information”

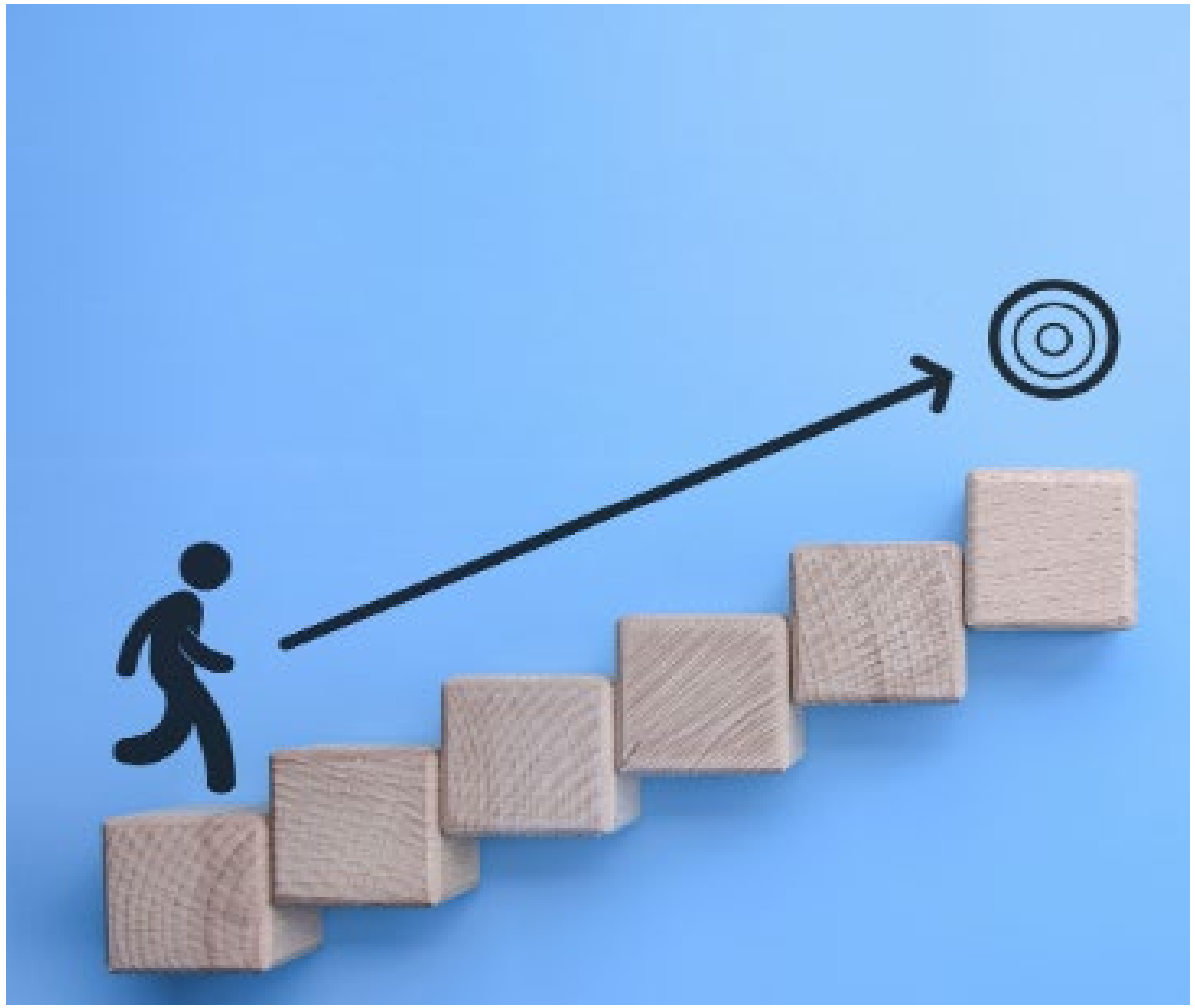


Discussion prompts

10.1. Because of the variability of covered products (some interacting with biogenic carbon flows and others not) under these rules, DEQ discourages the use of GWP results including biogenic carbon from any ecomodulation fees. However, is it sufficient to simply follow the structure of ISO 21930 here? Do we need a more nuanced approach for modeling biogenic carbon?

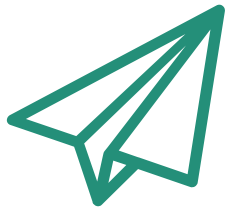
10.2. Should covered products which interact with biogenic carbon fluxes to/from the environment be required, as proposed, to report both GWP excluding and GWP including biogenic carbon?

Next steps



- Connect with your networks
- Email any questions or feedback to: recycling.2024@deq.oregon.gov
- Next RAC meeting is March, 14, 2024

More info



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Title VI and alternative formats

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