



Oregon Department of Environmental Quality

Request for Information #2

Supporting the Plastic Pollution and Recycling Modernization Act Rulemaking

Summary

The Plastic Pollution and Recycling Modernization Act requires the Oregon Environmental Quality Commission to establish by rule the methodology, procedures, and requirements to be used by producers of covered products when conducting evaluations of life cycle environmental impacts pursuant to the Act. Evaluations conducted by producers of packaging, printing and writing paper, and food serviceware in accordance with these rules will be used by the top 25 largest producers in the state to fulfill an obligation to evaluate and disclose impacts (per ORS 459A.944 excerpted below), and can be used by all producers in requesting eco-modulated fee discounts (under ORS 459A.884, also excerpted below).

459A.944 Life cycle evaluation; rules. The Environmental Quality Commission shall establish by rule standards for the evaluation and disclosure of the environmental impacts of covered products through the life cycle of the products. Rules adopted under this section must:

- (1) Establish procedures and requirements to be used by producers when evaluating the life cycle impacts of covered products to obtain an incentive under ORS 459A.884 or when required to do so under subsection (2) of this section.
- (2) Require large producers to:
 - (a) Once every two years, perform an evaluation of the life cycle impacts of at least one percent of covered products that the large producer sells or distributes in or into this state;
 - (b) Provide the results of the evaluation to the Department of Environmental Quality; and
 - (c) Make the evaluation available on the website of the producer responsibility organization of which the large producer is a member. [2021 c.681 §33]

459A.884(4) Membership fees charged by producer responsibility organizations. In addition to the base fees described in subsections (2) and (3) of this section, a producer responsibility organization's membership fee schedule must incentivize producers to continually reduce the environmental and human health impacts of covered products by offering fee adjustments to producers that make or have made changes to the ways in which they produce, use and market covered products. Fee adjustments developed under this subsection must include lower fees for covered products with a lower environmental impact and higher fees for covered products with a higher environmental impact. In establishing the criteria for the graduated fee structure, a producer responsibility organization 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; and
- (e) The recycling rate of the material relative to the recycling rate of other covered products.

Translation or other formats

[Español](#) | [한국어](#) | [繁體中文](#) | [Русский](#) | [Tiếng Việt](#) | [العربية](#)
800-452-4011 | TTY: 711 | deqinfo@deq.oregon.gov

PLEASE NOTE: If you choose to comment, you do not need to respond to/address every question. Feel free to focus on those where you have relevant experience or knowledge. **If you do respond, please identify the question(s) you are responding to by including the associated question number.**

The Department will host a public webinar on Nov. 16, 2023 at 8 a.m. PT to share/promote the RFI and provide an opportunity to ask questions directly of staff. Throughout the rulemaking process there will be other opportunities for stakeholder engagement.

DEQ will use information gathered through this second RFI, the previous RFI, engagement of a Rulemaking Advisory Panel, and other data gathering efforts to promulgate a rule concept that will be shared with a rulemaking advisory committee at a public meeting (including an opportunity for public input) on Feb. 14, 2024. Following feedback from the RAC, DEQ will prepare draft rules, which will be posted for public input. Draft rules may then be revised and final rules will be submitted to the Environmental Quality Commission for consideration and possible adoption in late 2024. DEQ also reserves the option to address certain requirements during that rulemaking and to adjust or add to rules via a subsequent (follow-up) rulemaking.

The RFI questions are organized below by rule concept category, with information on each concept presented initially, followed by questions specific to that concept. General questions applicable across the categories follow at the end.

Rule concept 1: Clarifying rules on the large producer disclosure requirement (ORS 459A.944)

- **Defining one percent:** DEQ proposes to define one percent of a producer's covered products as one percent of the unique SKUs (Stock-Keeping Units) sold by the producer in or into the state. To determine which one percent of products to disclose impacts for, a producer would order its SKUs by Oregon sales revenues and take the top one percent of SKUs.

Batch assessments can be performed covering multiple associated SKUs (e.g. cereal boxes of different sizes), with out-of-order SKUs covered by the batch assessments also counted toward the one percent.

Assessments for a given SKU would encompass any secondary and tertiary packaging that is associated with that SKU, as well as the primary packaging for covered products.

- **Calendar for the large producer disclosure:** The first one percent batch of assessment and disclosure must occur for a deadline of December 31, 2026, except for producers who were not among the top 25 producers by interim market share published in September 2025, but then appeared in the updated ranking published in August 2026. These producers will be given an additional six months (i.e., until June 30, 2027) to assess and disclose.

Subsequent deadlines will occur at two-year intervals (i.e., Dec. 31, 2028; Dec. 31, 2030; etc.) and will use rankings published in the prior year. For example, in August 2027 DEQ will publish a top 25 ranking using producers' 2026 data. The top 25 producers in that ranking must conduct the required disclosure for the Dec. 31, 2028 deadline.

- **Requirements for subsequent disclosure:** If still a large producer two years later, the subsequent disclosure must not duplicate SKUs from the prior disclosure. SKUs should be ranked again by Oregon sales and the next 1% should be selected (that has not already been assessed).

SKUs that have already been assessed may be repeated after 10 years, or earlier if all SKUs have been assessed.

Questions on rule concept 1

- 1.1 Are SKUs the correct level of granularity for the evaluation and disclosure of life cycle impacts?
- 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 Is it feasible for producers to keep track of the primary, secondary and tertiary packaging associated with a given SKU?
- 1.4 Are Oregon sales an appropriate proxy for relative environmental impact of a particular producer's product?, i.e., by having producers rank their SKUs by *sales* and then disclose impacts of the top 1%, will we be capturing the most impactful covered products?

Rule Concept 2: Clarifying rules on ecomodulation (ORS 459A.884(4))

Per ORS 459A.875(2)(a)(F) and ORS 459A.884(4), PROs in their program plan will propose for DEQ's evaluation and approval an approach to ecomodulation of producer fees that continually incentivizes reductions to environmental and human health impacts of covered products. Statute does not restrict the criteria nor the magnitude by which a PRO may propose to ecomodulate fees, and only indicates five factors that must be taken into consideration. While statute does not place any such restrictions on the PROs, it is not precluded that this could be done in rule.

The following rule concepts are proposed:

- PROs must include in their ecomodulation algorithm a bonus for producers' voluntary disclosures of the life cycle impacts of covered products. Results of these disclosures must be made available on a PRO website and submitted to DEQ, as with the large producer disclosures. Producers may claim bonuses for up to 10 SKUs for which a life cycle evaluation LCA is performed and disclosed, to prevent unfair advantage for large producers with in-house LCA capacity.
- PROs must include in their ecomodulation algorithm a larger bonus for producer actions that reduce the life cycle impacts of covered products and for which the reduction is quantified using the evaluation standards and methods set in rule. This bonus can be claimed if:
 - The change resulting in reduction of life cycle impacts has been undertaken directly by the producer (or its suppliers),
 - The change has already been implemented and a substantial reduction in impacts is indicated through impact assessments of two scenarios (before and after). A substantial reduction in impacts is defined as:
 - More than 50% impact reduction within one or more of the following impact categories, if impacts in all other categories are unchanged or do not increase:
 - Impacts of plastics on ecosystems
 - GWP potential (Climate change)
 - Air acidification
 - Eutrophication
 - Human toxicity
 - Ecotoxicity; or
 - A greater than 70% reduction to one category with no greater than a 25% increase in any other category, as long as no increases occur in the following impact categories:
 - Impacts of plastics on ecosystems
 - GWP potential (Climate change)
 - Air acidification

- Eutrophication
- Human toxicity
- Ecotoxicity

Questions on rule concept 2

- 2.1 Is the “substantial reduction in impacts” definition sensible in terms of the impacts that are prioritized and the thresholds that are proposed?
- 2.3 Per the “substantial reduction in impacts” definition, a producer’s changing material to plastic from another material (e.g. paper, metal, glass) would not qualify for an impact reduction bonus, because the impact of plastics on the ecosystem would go up prohibitively. Is this justified given global concern about the plastic pollution impacts of packaging?

Rule Concept 3: Core product category rules for evaluation of the life cycle impacts of covered products

The rules to be developed under this concept would lay out the requirements and guidelines to be followed when evaluating the life cycle performance of covered products. DEQ proposes to design these rules similar to a Product Category Rule (PCR) that encompasses all covered products under the Recycling Modernization Act. PCRs allow for verifiable and consistent reporting across diverse assessments within a given product category, ensuring consistency.

DEQ proposes to use ISO 21930 as the basis for the structure of these rules, which are product category rules for building and construction products. ISO 21930 is widely acknowledged to contain the most rigorous and comprehensive set of requirements for disclosure of environmental impacts and non-LCIA indicators. Content specific to construction products will be replaced with content specific to the RMA’s covered products in a way that follows the principles and procedures set forth in ISO 14025, ISO 14040, and ISO 14044. The outputs and results that will be generated by applying this rule concept are only based on Life Cycle Assessment (LCA) in the current iteration of the concept. Disclosure of additional environmental information beyond that required for LCA could be proposed as a part of this rulemaking; if there were such requirements, they would be integrated into the rule language per Additional Environmental Information, Section 9.6 of ISO 21930.

Because DEQ is not proposing rules that would compare products of the same function with one another, DEQ proposes to use *declared* rather than *functional units* as the reference unit for which the assessment should be conducted and the results should be reported, consistent with Section 7.1.3 of ISO 21930. *Declared units* – e.g. 1 ton, 1 item, 1 foot of [a given covered product] – will be defined for each covered product in rule. Results must also be aggregated across the total amount of a given covered product sold into Oregon by a producer during a defined reporting period.

In subsequent rulemakings, separate PCRs that are specific to sub-categories of covered products may be developed, but for this initial rulemaking on this topic, DEQ proposes to develop a single core PCR, due to capacity and time limitations.

Questions on Rule Concept 3

- 3.1 Do you support the proposed approach of developing a general Product Category Rule for covered products with ISO 21930 serving as the structural backbone? Why or why not (what are the limitations or benefits of this approach)?

Rule Concept 4: Key PCR aspect #1¹ - life cycle impact assessment

To address concerns that life cycle assessment does not incorporate a comprehensive set of environmental impacts, particularly those that are emergent environmental areas of concern, DEQ proposes to incorporate all of the environmental impacts and indicators from ISO 21930, as well as particular human toxicity and ecotoxicity impacts and indicators. Additionally, DEQ proposes to include, as optional, emergent impact categories and methodologies (as “additional environmental information”) including, but not limited to:

1. S-LCA indicators²
2. LCIA based on Planetary Boundaries³
3. Damage cost factors through natural capital accounting⁴
4. MariLCA⁵ plastic ecosystem impacts (note – this methodology is required if a producer is seeking a significant impact reduction bonus)

Questions on rule concept 4

- 4.1 Does the approach, to prescribe a set of impact factors and methodologies based on ISO 21930 make sense? What are the limitations or benefits of this approach?
- 4.2 Are the methodologies to evaluate emergent impacts sufficient or deficient? Should they be allowed to be optional?

Rule Concept 5: Key PCR aspect #2 – life cycle inventory – plastic leakage

Plastic pollution and litter can occur throughout the life cycle of a covered products. Often these flows of plastic can go untracked. In order to quantify the flows of plastic materials into and out of the production system for relevant covered products, DEQ recommends inclusion of primary and/or secondary data to track these flows. DEQ suggests following the methodology outlined in the plastics leak project⁶ to measure/estimate the flow of plastics into or out of a covered product system. This will allow quantification of all plastic leakage across the life cycle of a covered project and support classification and characterization of plastic leakage in terms of emergent impact methodologies, such as MariLCA.

Questions on Rule Concept 5

- 5.1 It will be critical to track the flows of plastic leakage across the life cycle of products to perform impact assessment. Does the plastics leak project provide an adequate methodology to do so?
- 5.2 Is it reasonable to expect producers of covered products to obtain/track this information?
- 5.3 Is there a different approach that would ensure tracking of these flows of plastic leakage?
- 5.4 Are these existing LCI databases that already do this and if so, should DEQ prescribe specific datasets?

¹ The remaining rule concepts in this document focus on key aspects within the Product Category Rule for covered products.

² [Social Life Cycle Assessment S-LCA](#)

³ [Bjorn et al. \(2020\) Life cycle assessment: Applying planetary and regional boundaries to the process level: a model case study](#)

⁴ [Rugani et al \(2023\) Environmental footprint neutrality using methods and tools for natural capital accounting in Life Cycle Assessment.](#)

⁵ [MariLCA](#) staff indicated to DEQ on 6/21/23 that inventories for assessing physical impacts of micro- and nanoplastics on marine biota are expected to be ready for use at our start date of July 1, 2025. Over time, additional inventories would come online that would encompass impacts of macroplastics and additionally address ecotoxicity and invasive species impacts of plastics (both for micro/nanoplastics and macroplastics). Thus, inclusion of the impact category of “plastic ecosystem impacts” in our PCR would serve as a placeholder for MariLCA-sourced methodology that would come online over time.

⁶ <https://quantis.com/who-we-guide/our-impact/sustainability-initiatives/plastic-leak-project/>

Rule concept 6: Key PCR aspect #3 – life cycle inventory – methane leakage

DEQ is considering requiring that primary and/or secondary data on methane leakage, specifically upstream in the supply chain of plastic production, be included in the underlying life cycle inventory for covered products. DEQ has received stakeholder input that methane leakage is an often ignored or underreported in conventional life cycle inventories. This leakage can occur at various points across the life cycle of particular covered products (at the wellhead, pipeline, transport, and refinery) and methane, as a potent greenhouse gas, is of particular relevance in addressing climate change in the short term. A primary data share metric (using actual plant data vs. emissions factors) could be employed as a first step towards understanding if a company is just using an industry average. Going a step further, the [MiQ Highwood Index](#) provides an in-depth look at a US benchmark value for methane intensity incorporating satellite observations, and could be used for verifying actual data.

Questions on rule concept 6

- 6.1 Is this an issue that warrants special attention in rules? Do existing LCI datasets already account for methane leakage in the upstream supply chain for petrochemical products (e.g. plastics)? Do the existing standards that these rules will require conformance with (ISO 14040, 14044, 21930) provide sufficient guidance/methods here?

Rule concept 7: Key PCR aspect #4 – evaluation of covered products that are reusable

Some covered products may be reusable. In order to ensure that reusable products are consistently evaluated, DEQ recommends development of specific rules for conducting impact assessments for reusable covered products. In addition to the general rules of life cycle evaluation based on ISO 21930:2017, key parameters⁷ for evaluation of reusable covered products shall include, at a minimum:

- A system boundary based on the full life cycle including:
 - Use-phase variables that are clearly articulated and justified, including:
 - Customer transportation for return (mode/distance)
 - Washing and sterilization process
- Return Rate – factor to account for breakage, losses, or yield across each reuse cycle
- Expected number of reuse cycles (examined through scenario analysis)

Additionally, these rules would require evaluation of multiple scenarios for a reusable covered product, such that an expected scenario forms the baseline (e.g. in terms of return rate, # of reuse cycles) and a minimum of two additional scenarios, a worst and best case scenario (e.g. in terms of low/high return rates and/or lower/high # of reuse cycles) are also assessed. Thus, a reusable covered product shall report results for three different scenarios. The declared unit(s) for reusable products thus relates to these three scenarios and will be clarified in rule.

“Reusable product” will need to be defined in these rules so that, for example, reusing a yogurt cup as a planter pot would not qualify “reuse” under the rules. DEQ proposes to define “*reusable product*” as a product that is a) designed for reuse, b) durable, c) supported with adequate infrastructure to enable the highest/best reuse, and d) actually reused. “Highest and best” reuse means scenarios that ensure reuse of a covered product in a similar or more environmentally preferential way, as opposed to reuse that leads to environmentally worse outcomes.

⁷ These parameters are derived from PR3's [Reusable Packaging System Design Standard](#).

Questions on rule concept 7

- 7.1 How would you propose applying the impact reduction bonus to reusable products? If a producer switches from a single-use to a reusable product (packaging, serviceware, etc), can the impact for the single-use product be compared with that of the reusable product, and a bonus be applied (or not) on the basis of the thresholds outlined in Rule Concept II? Or could it be problematic to compare the two scenarios with one another?
- 7.2 Are we requiring additional/undue burden on reusable covered products by requiring multiple scenarios?
- 7.3 Does our proposed definition of “reusable product” provide sufficient clarity for which covered products qualify as reusable?

Rule concept 8: Key PCR aspect #5 – scenario analysis

DEQ recommends a requirement that producers of covered products perform sensitivity analysis for key data, parameters, or methodological choices (i.e. the impact hot spots) in the life cycle evaluation of their products. Sensitivity analysis is generally understood in this context as a “systematic procedure for estimating the effects of choices made regarding methods or data on the outcome”, according to ISO 14044:2006 Section 3.31. The purpose of this requirement is to provide additional quantitative information about the potential variability of results associated with the life cycle evaluation of a given covered product. The sensitivity analysis should specifically include the mean, range, min/max, and variance, across all required LCIA and indicators. As an example, a producer testing individual variables, such as, but not limited to:

- a. Electricity grid mix
- b. Recycling allocation methodology

Questions on rule concept 8

- 8.1 Should DEQ require sensitivity analysis?
- 8.2 How should “key data, parameters, or methodological choices” be defined?
- 8.3 Should DEQ pre-select the parameters for testing/inclusion or leave that to LCA practitioner to determine?

Rule concept 9: Key PCR aspect #6 – recycling allocation procedures

End-of-life allocation shall follow the requirements of ISO 14044, section 4.3.4.3 and more specifically when calculating substitution benefits at end of life these rules will require following the methods and guidelines found in chapter 7.1.7.6 *Benefits and loads beyond the system boundary in optional supplementary module D* of ISO 21930:2017. These rules do not prescribe or favor one recycling allocation methodology (e.g. the “avoided burden” approach versus “cut off” approach); however the producer must disclose the underlying methodology applied and ensure that no double counting of benefits occurs (e.g. one may not reduce upstream impacts through the “cut off” approach while simultaneously taking credits at end of life through “system expansion”).

Questions on rule concept 9

- 9.1 Because of the breadth of covered products, there are various approaches that can be used to quantify/evaluate the benefits of recycling. Often the favored approaches differ by material type, product category, and/or industry. Should DEQ prescribe specific recycling allocation methodologies within these rules? If so, should there be a single methodology that is prescribed across all covered products? Or should product category or material-specific recycling allocation methodologies be set?
- 9.2 How should our rules on recycling allocation methodology be linked with the rules regarding eco-modulation of fees (i.e., Rule Concept II in this document)?
- 9.3 Should DEQ recycling allocation rules similar to those of the PEFCR program in Europe (e.g. the Circular Footprint Formula)?
- 9.4 Does any specificity or distinction need to be made for different types of recycling (e.g. mechanical vs. chemical)?

Rule concept 10: Key PCR aspect #7 – biogenic carbon accounting

DEQ proposes a biogenic carbon accounting methodology that is consistent with the approach outlined by ISO 21930:2017. Namely, that flows of biogenic carbon (that is carbon derived from biomass) shall be accounted for and reported within the underlying life cycle inventories of covered products. Inputs shall be characterized as a negative inventory flow (-1 kg CO₂e/kg CO₂) and outputs as a positive elementary flow (1 kg CO₂e/kg CO₂) when calculating Global Warming Potentials.

DEQ does not recommend the inclusion of GWP (that includes biogenic carbon flows) in the eco-modulation scheme devised by the Producer Responsibility Organization, in particular the bonuses granted for “significant reduction” in impacts demonstrated through these standards. This reflects the short-lived nature of covered products that interactive with biogenic.

Questions on rule concept 10

- 10.1 Because of the variability of covered products (some interacting with biogenic carbon flows and others not) under these rules, we discourage 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? Does a more nuanced approach need to be articulated 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?

General questions on rule concepts 2-10

- 11.1 Should ecomodulation point in the direction of system change for the packaging, paper and food serveware industries, and are these rule concepts pointing in that direction (i.e., incentivizing changes that collectively would amount to system change)?
- 11.2 Statute requires PROs to take five factors into account in developing their proposed approaches to ecomodulation, with evaluation of life cycle impacts one of the five. Do these rule concepts adequately capture the other four factors, so as that a PRO could consider that it has taken all factors into account in developing an ecomodulation approach based solely on life cycle impact evaluation? If you feel it is not adequate, how would you account for the other four factors (or any additional factors not called out in Statute)?

Dates

Responses must be received by December 15, 2023. Submit your comments, identified by RFI name to RethinkRecycling@deq.state.or.us

Once submitted, comments cannot be edited or retracted. If you elect to comment, you do not need to address every question and may focus on those where you have relevant expertise or experience. **Please identify the question(s) you are responding to by question number when submitting your comments.**

Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Please do not submit information in audio or video format. The written comment is considered the official comment and should include discussion of all points you wish to make. In all cases, to the extent possible, please cite any public data related to or that support your responses. If data are available, but non-public, describe such data to the extent permissible.

Contact

For further information, contact us by email: RethinkRecycling@deq.state.or.us

Non-discrimination statement

DEQ does not discriminate on the basis of race, color, national origin, disability, age or sex in administration of its programs or activities. Visit DEQ's [Civil Rights and Environmental Justice page](#).