

Eco-Modulation

What Is Eco-Modulation

Eco-modulation is a system used within Extended Producer Responsibility (EPR) programs that adjusts producer fees based on the environmental impact of their product.

- Higher fees for materials that are hard to recycle or environmentally harmful.
- Lower fees for materials that are more recyclable or environmentally preferable.

Eco-Modulation and EPR for Packaging

Eco-modulation within packaging EPR creates financial incentives for companies to design packaging that is easier to recycle, contains recycled content, and avoids harmful materials. Therefore, driving innovation and reducing waste and pollution.

By aligning fees with recyclability and recycled content performance, eco-modulation encourages greater material standardization, improving sorting efficiency and strengthening end markets through a more consistent, high-quality supply of recyclable materials.

As of Winter 2026, all existing EPR legislation in the U.S. and Canada includes eco-modulation provisions, though some programs are still finalizing full implementation.



Why It Matters

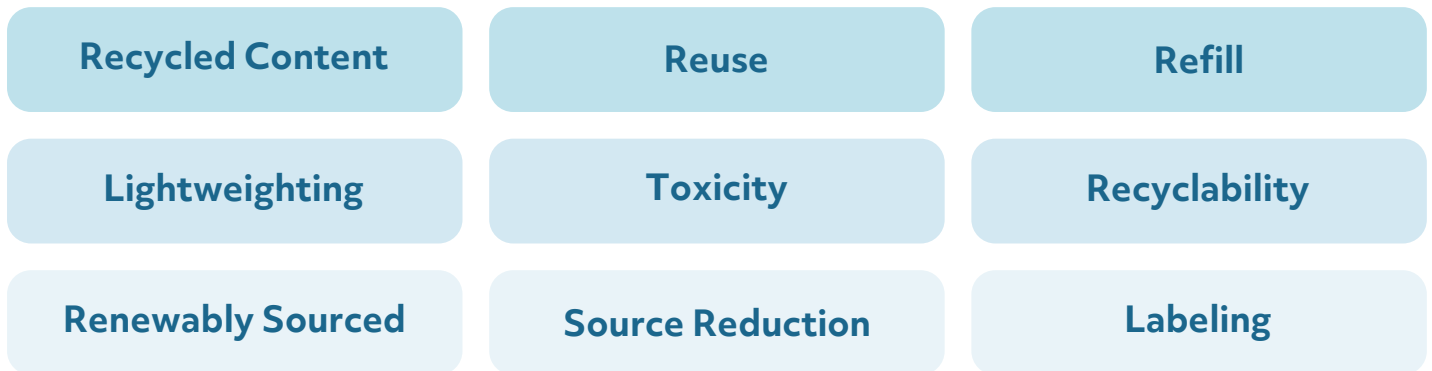
For the Environment

- Reduces the use of hard-to-recycle or harmful packaging materials.
- Leads to less waste ending up in landfills, waterways, and the environment.
- Increases recycling rates and improves the quality of recyclable materials.

For the Economy

- Links producer fees to environmental performance, meaning in theory that companies that design better, more recyclable packaging incur lower fees.
- Encourages innovation and investment in sustainable packaging solutions.
- Strengthens end markets by incentivizing the use of standardized, recyclable materials by improving material quality, reducing contamination, and creating a more reliable supply of feedstock for manufacturers using recycled content.
- Helps achieve waste reduction and climate goals more efficiently.

Criteria Considered in Eco-Modulation Fee Structures



And More...

Types of Eco-Modulation

1. Basic Eco-Modulation

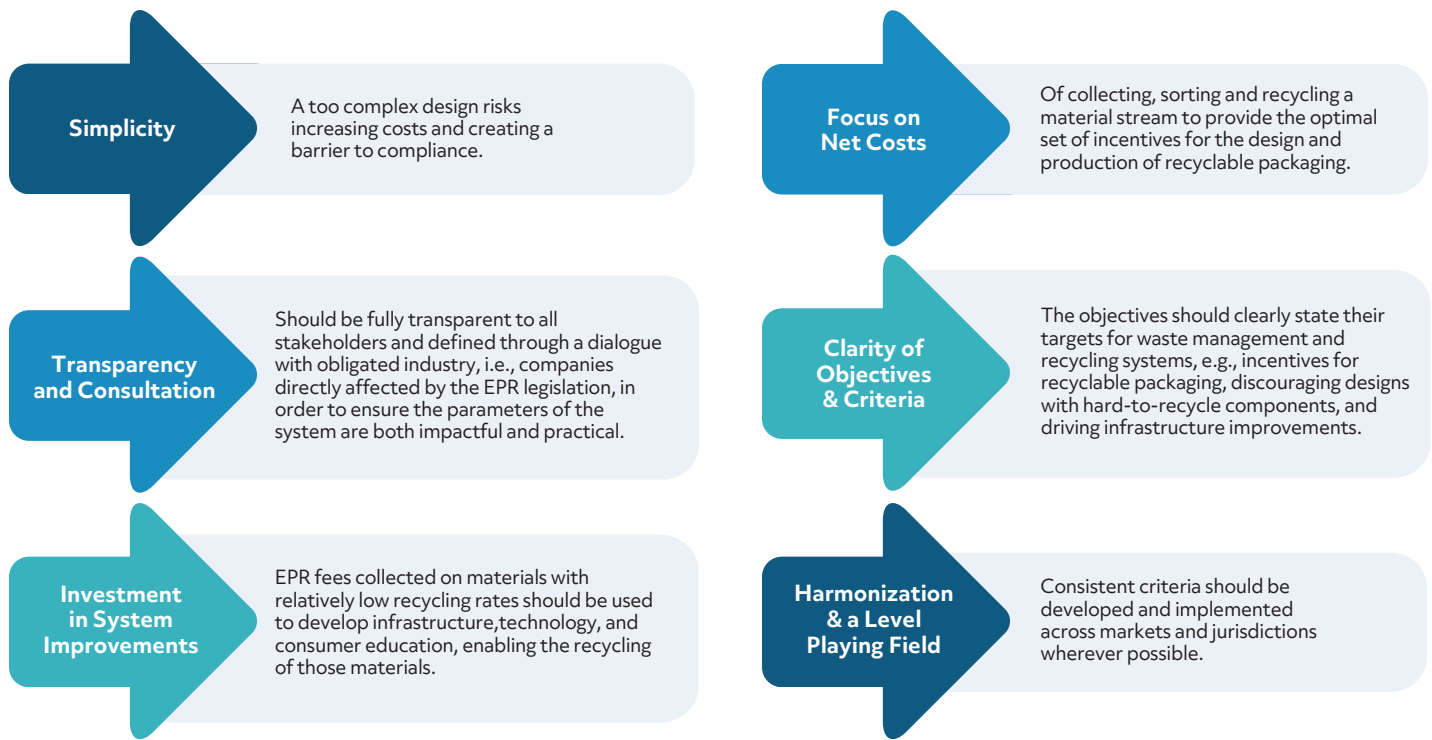
- Adjusts fees mainly based on the recyclability of material and net recycling costs.
- The criteria considered are limited, making implementation simpler.
- Best suited for markets where EPR, recycling systems, and governance are still in development.

2. Multi-Factor Eco-Modulation

- Incorporates multiple incentives and disincentives tied to policy goals beyond recyclability, such as:
 - Promoting bio-based materials.
 - Increasing recycled content.
 - Reducing packaging weight and waste.
- Adds cost and complexity to the system.
- Best for mature EPR systems with established rules, infrastructure, and governance.



Key Principles of Eco-Modulation



Key Considerations for Implementation

When designing an eco-modulation system, decision-makers should consider:

- 1. Market Readiness:** Is the recycling infrastructure developed enough for multi-factor systems?
- 2. Administrative Complexity:** Fee setting and adjustments require robust data collection and compliance monitoring.
- 3. Incentive Balance:** Penalties and rewards should meaningfully influence packaging design and encourage standardized, recyclable materials that support strong end markets without creating disproportionate burdens.
- 4. Harmonization:** Implement in harmony with best practice in the region. Consistency across jurisdictions reduces confusion for producers operating in multiple markets.
- 5. Transparency:** Fee structures and decision criteria should be available to both industry and the public and should be clearly communicated accordingly.
- 6. Adaptability:** Ability to adjust parameters as recycling technology and market conditions evolve.
- 7. Support:** Provide or partner with external organizations to provide consultation on specific best-practice guidelines and technical support to help companies improve product design and recyclability therefore improving program efficacy.