ESG & DEMATERIALIZATION | ANNUAL REPORT 2026 | PRODUCT ECO-DESIGN

REIDEA Electronic Lighters Sustainability Report 2026

Dematerialization, Hardware Eco-Design, and Product-Level Environmental Impact Assessment

Executive Summary & CEO Statement

At **REIDEA**, our core mission is simple: replace single-use disposable butane lighters with durable, high-efficiency, rechargeable electronic solutions. While many consumer brands talk about sustainability in broad, abstract terms, REIDEA's strategy is concrete, measurable, and product-focused.

Instead of relying solely on distant corporate pledges, we focus on **tangible dematerialization across our core product lineup (S4, R1 Pro, and F2 Ultra)**. By re-engineering product architecture, switching to recyclable housing materials, reducing PCB substrate volume, and enhancing battery performance, REIDEA transforms everyday ignition from a petroleum-dependent disposable habit into an energy-efficient appliance model.

Strategic Sustainability Roadmap (2025–2050)

Adopting global ESG framework structures (inspired by leaders like BIC's *Writing the Future, Together* program), REIDEA sets structured commitments across three horizon milestones:

🎯 **2025 Horizon: Eco-Design & Material Efficiency Baseline**

- Achieved **30% plastic reduction** across core product lines.
- Transitioned outer housing toward durable, recyclable aluminum material.
- Reduced internal PCB substrate length from 98 mm to 38 mm (-61% material footprint).

🌱 **2026–2030 Horizon: Circular Operations & Value Chain Decarbonization**

- Establish formal **Take-Back & E-Waste Recycling Programs** for lithium batteries and electronics.
- Transition to 100% Recycled Aluminum and Post-Consumer Recycled (PCR) plastics.
- Implement 100% recyclable, plastic-free retail packaging across all SKUs.
- Align emissions tracking with Science Based Targets initiative (SBTi) standards for Scope 1, 2, and 3.

🌍 **2050 Horizon: Net-Zero Value Chain & Closed-Loop Circularity**

- Achieve Full Net-Zero Carbon Footprint across complete product life cycles.
- Closed-loop critical mineral recovery (Lithium, Copper, Aluminum) via global recycling partnerships.

Pillar 1: Product Eco-Design & Hardware Optimization

In small consumer hardware, light-weighting and material reduction represent the most credible forms of incremental environmental progress. Over the 2020–2025 optimization cycle, REIDEA achieved five critical product-level efficiency milestones:

-30%

PLASTIC REDUCTION

Reduced petroleum-heavy plastic housing usage

-20%

WEIGHT OPTIMIZATION

~10g lighter per unit, cutting transport emissions

-61%

PCB SUBSTRATE SIZE

Reduced board length from 98mm to 38mm (FR-4 material)

+33%

BATTERY EFFICIENCY

Improved from 30 to 40 ignitions per charge

Material & Architecture Improvements Detailed:

- **Less Plastic:** Shifting away from cheap, disposable plastic construction minimizes petroleum dependency and microplastic end-of-life risks.
- **Aluminum Casing Transition:** Utilizing recyclable aluminum housing increases everyday product durability, encouraging multi-year consumer usage over single-use disposal.
- **PCB Architectural Redesign:** Cutting board length from 98 mm to 38 mm eliminates unnecessary epoxy resin and woven glass fiber (FR-4 substrate), reducing resource intensity in electronics manufacturing.
- **Battery Performance Boost:** Utilizing an efficient 170–220 mAh (~0.8 Wh) lithium system that delivers 40 ignitions per charge ensures the lighter remains highly convenient for everyday household rotation.

Pillar 2: Model-Level Lineup Analysis

MODEL	PRIMARY MARKET POSITIONING	SUSTAINABILITY & COMMERCIAL SIGNAL
REIDEA S4	Amazon Best Seller (2021–2024) Mainstream Household Lighter	Featured by **NBC** / **The Today Show** in a sustainable home products segment. Validates mainstream commercial demand for reusable lighters.
REIDEA R1 Pro	Best Seller in Lighter Gift Sets	Shifts gift buyers away from single-use disposable novelty lighters toward durable, rechargeable hardware.
REIDEA F2 Ultra	Flexible Long-Neck Lighter (Candles, Grills, Fireplaces)	Replaces repeated high-frequency disposable butane lighters in multi-use household settings with a high-durability form factor.

Pillar 3: Annual Climate & Resource Impact Assessment

Based on disclosed sales data, REIDEA distributes approximately **400,000 units per year** (midpoint of 300,000 to 500,000 unit range). Over an estimated 1.5-year lifespan, each REIDEA lighter replaces approximately **5 single-use disposable butane lighters**, resulting in an annual displacement of **2,000,000 disposable plastic lighters**.

IMPACT CATEGORY	SINGLE-USE DISPOSABLE LIGHTER (1 UNIT)	REIDEA RECHARGEABLE SYSTEM (1 UNIT)
Housing Material	12–15 g ABS / AS Plastic (Non-recyclable)	Recyclable Aluminum + Reduced Plastic
Fuel / Power Source	4–5 g Liquefied Butane (Fossil Fuel)	~0.8 Wh Rechargeable Lithium (~0.001 kWh/ charge)
Carbon Footprint	~80–120 g CO_2e (Production, Fuel, Disposal)	~300–400 g CO_2e (Manufacturing & Transport)
Annualized Impact	~500 g CO_2e / year (5 replaced units)	~250 g CO_2e / year (Amortized over 1.5 years)

Net Avoided Carbon Emissions Calculation

Gross Avoided Emissions: 2,000,000 displaced units × 100 g CO_2e = **200 Metric Tons CO_2e**
REIDEA Annual Footprint: 400,000 units × 250 g CO_2e/year = **100 Metric Tons CO_2e**

🌱 **NET ANNUAL AVOIDED EMISSIONS: ~100 to 200 Metric Tons CO_2e / year**

🚗 Car Emissions Equivalent

Equivalent to removing **40 to 80 gasoline-powered passenger cars** from the road each year.

🌲 Forestry Offset Equivalent

Equivalent to the annual carbon absorption capacity of **4,500 to 9,000 mature trees**.

Pillar 4: Resource Conservation & Consumer Economics

🔥 9.0 Metric Tons

Avoided Liquefied Butane

Directly eliminates 9,000 kg of fossil fuel combustion from single-use lighters annually.

♻️ 26.0 Metric Tons

Prevented Plastic Waste

Prevents 26,000 kg of non-biodegradable ABS/AS plastic waste from entering landfills and ocean streams.

Consumer Financial & Operational Benefits

A reusable product delivers true sustainability value when it aligns with consumer economic interest. Replacing 2,000,000 disposable lighter purchases at $1.00–$1.50 each shifts **$2,000,000 to $3,000,000 in consumer spending** away from throwaway plastic products.

- **Minimal Electricity Cost:** Charging a REIDEA lighter 100 times per year uses roughly **0.1 kWh** ($<0.02 USD), adding under 50g CO_2e in grid operational emissions.
- **Dematerialization Efficiency:** Replaces repeated low-value material throughput (petroleum refining, plastic molding, shipping throwaways) with one durable, rechargeable appliance.

Governance, Disclosure & Continuous Improvement

REIDEA is committed to elevated transparency. While our dematerialization impact is substantial, we recognize key operational development goals for 2026–2027:

- **Supplier Verification:** Formalize third-party audit verification for recycled aluminum supplier claims.
- **E-Waste Take-Back Infrastructure:** Partner with regional electronics recycling facilities to provide transparent end-of-life battery and PCB recovery options.
- **Packaging Standardization:** Transition 100% of retail product packaging to plastic-free, FSC-certified recycled paperboard.