



November 1, 2024

## **Productivity Commission inquiry – Opportunities in the circular economy**

Apple welcomes the opportunity to respond to the Productivity Commission’s inquiry into Australia’s opportunities in the circular economy to improve materials productivity and efficiency in ways that benefit the economy and the environment.

### **Our commitment to the environment**

We are at a pivotal moment in addressing climate change, one of the greatest threats of our time. At Apple, we see an opportunity to help drive change and uncover innovations that make our products even better for the planet. We aim to build durable, long-lasting products that make the best use of the finite resources inside them.

As part of our circular economy strategy, we’re moving toward a future where we can implement low-carbon designs, create recycling technologies that help end our reliance on carbon-intensive mining, build products using only recycled and renewable materials, and invest in expanding our repair network. Apple’s worldwide operations are already carbon neutral, and we’re committed to extending that progress to our entire carbon footprint by 2030.

### **Our approach**

Innovation drives our efforts around circularity — from the materials we source and the product design choices we make to the recycling and recovery innovations we pursue. We prioritise the materials and components that account for significant portions of our greenhouse gas emissions. This means that the choices we make product by product can scale toward reducing our overall footprint. These priorities inform our work to design for material efficiency and increase our use of recycled and renewable materials.

We aim to one day make our products from 100 percent recycled or renewable materials while meeting our rigorous standards for quality, durability, performance, and environmental and social protections. We strive for efficiency in sourcing and utilising materials, relying on recycled and renewable materials for our products and packaging, and reducing scrap. Another part of what makes our goals possible is the recycling innovations we’re developing to enhance material recovery. We hope our actions inspire others to support building circular supply chains.

We are always working to create the best experience for our customers, which is why we design products that last. Designing for longevity is a company-wide effort, informing our earliest decisions long before the first prototype is built and guided by historical customer-use data and predictions on future usage. It requires striking a balance between durability and repairability while not compromising on safety, security, and privacy.

We are continuously striving to increase product longevity through new design and manufacturing technologies, ongoing software support, and expanded access to repair services. We also make it easy for customers to give their products a second life by simplifying the process to securely wipe their devices in preparation for resale or trade in.

Working to positively influence the markets where we work, advocating for policy that enables circular supply chains, impacting communities worldwide, and inspiring others to follow suit — these are the opportunities that drive us through the challenging work of creating circular supply chains.

## **Our progress**

We're making progress toward our goal of sourcing only recycled or renewable materials in our products.

Our efforts focus on 15 materials that we've prioritised based on a broad range of environmental, social, and supply chain impacts. Some of the materials prioritised through this process include lower-mass but higher-impact materials like gold. Our priority materials account for 87 percent of the total product mass shipped to our customers in 2023.

In 2023, 22 percent of the materials we shipped in Apple products came from certified recycled or renewable sources. This includes, 99 percent of tungsten, 71 percent of aluminium, 52 percent of cobalt, 25 percent of gold, 24 percent of lithium and more than 75 percent of the total rare earth elements in our products.

Maintaining our standards for recycled and renewable materials is essential to our journey to create a circular supply chain. By requiring certification to international standards, we're able to confirm that a material has been recycled or comes from a renewable source — one that can continually produce without depleting the earth's natural resources. This process allows us to scale our use of materials that are better for the environment and safer for use in our products. Recycled material is certified by third parties to a recycled content standard that conforms with ISO 14021. Total recycled content numbers also include supplier reported recycled content checked by Apple but not third-party certified.

We continue to develop better, more efficient means of disassembling products that maximise material recovery while minimising waste. Our Material Recovery Lab (MRL), an R2-certified facility in Austin, Texas, focuses on assessing the recyclability of our products, helping inform design decisions that support disassembly and recovery. The MRL's work has led the way in automated approaches to material recovery with our robots Daisy, Dave, and Taz. Daisy can disassemble up to 1.2 million iPhones each year, helping us recover more valuable materials for recycling. From just one metric ton of iPhone main logic boards, flexes, and camera modules recovered by Daisy, our recycling partner can recover the same amount of gold and copper as can be obtained from more than 2,000 metric tons of mined rock.

Our teams are overcoming obstacles to creating closed loop supply chains, including material performance and traceability. This is possible through our work with a diverse group of partners. For example, we were able to design an alloy containing 100 percent recycled aluminium that meets our rigorous design performance standards. And we've improved our ability to track key materials within our supply chain.

Barriers to our progress remain — including challenges within our control and those outside our direct influence. Addressing these requires a collective response. Through collaboration within the material space, we can achieve impact felt beyond our business. The supply chains we're helping create serve more than just our product needs — they help promote the availability of competitively priced, quality recycled and renewable materials across geographies.

## **Key challenges to developing circular supply chains**

### *Technical properties*

The properties of a certain recycled or renewable material may differ from the primary material. This needs to be accounted for during product design and manufacturing. For example, select recycled plastics differ in properties from other plastics. The composition of other recycled materials can also be impacted by some level of contamination during the recycling process.

### *Availability and access*

The supply of recycled and renewable materials can be constrained by the limited availability of recoverable material or production of renewable content. When supply exists in some locations around the world, new suppliers need to be incorporated into supply chains for the material to be accessed.

#### *Traceability*

Information about the source of materials — whether mined, recycled, or renewable — might not be readily available.

#### *Scale*

Materials for a single component can come from hundreds of different suppliers, requiring exponentially more effort as we scale the use of high-quality recycled or renewable materials across components and products.

#### *Regulatory barriers*

Transboundary movement regulations — created to establish critically important community and environmental protections — can have the unintended consequence of inhibiting material recovery and movement to recyclers or refiners for use in new products.

### **Policy principles**

Our Apple 2030 roadmap is intended to not only address the impacts of our business, but also catalyse ambitious environmental leadership globally. We believe that strong, worldwide government actions are essential to enable the systemic policy changes the world needs. We're guided by the following principles on circular economy:

- Drive policies that include circularity as part of the solution, where feasible, to responsibly meet the growing demand for critical materials used in electronics of all kinds.
- Further improve labour, human rights, and environmental standards throughout recycled and primary materials supply chains.
- Promote policies that maximise product longevity and minimise environmental impact by balancing design for reliability and ease of repair, while ensuring user privacy and device security are protected.
- Support globally-aligned, evidence-based and product-specific eco-design standards.
- Develop collection programs that engage customers, protect environmental and human health, and capture high volumes of electronics for reuse, repair, refurbishment, and recycling.
- Promote consistent waste regulations, that are harmonised across geographies, to enable efficient, commercially viable movement of materials for recovery and recycling.
- Encourage recycled content use through the development of high-quality secondary material supply, by incentives for the development and expansion of recycling infrastructure.
- Support the development of advanced electronics recycling facilities that can recover more types of resources at higher qualities, including materials that are difficult to recover or of lower value.

Apple looks forward to further contributing to the Commission's inquiry.