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Novelis

The Role of Aluminum in a Circular Economy

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The following is a blog by Suzanne Lindsay-Walker, Vice President, Sustainability, at Novelis

As companies seek balanced solutions to reduce waste, lower carbon emissions, and make better use of natural resources in this environment, the concept of a circular economy has come front and center. A circular economy is designed to keep materials in their highest use for as long as possible, reducing the need for virgin resources (critical minerals too!) while minimizing waste and environmental impact, representing a fundamental shift from the traditional linear model of "take, make, dispose"[1].

At Novelis, recycling is at the core of our business model. We believe that embracing circularity is essential for a sustainable future, and aluminum is crucial in transitioning to a circular economy.

By designing recyclable products and investing in advanced recycling infrastructure, we create significant economic value. This minimizes reliance on raw materials, supports global supply chains, and enhances economic resilience. Recycling aluminum strengthens supply

chain security, generates jobs, and fosters sustainable economic growth, while maximizing resource efficiency, reducing waste and contributing to long-term global economic prosperity.

What Is a Circular Economy?

A circular economy moves away from linear consumption patterns by keeping products, components, and materials in circulation through reuse, repair, remanufacturing, and recycling. According to the Ellen MacArthur Foundation, a circular economy is designed to tackle global challenges such as climate change, waste, and pollution while creating economic opportunities by maximizing resource efficiency.

For materials like aluminum, circularity means focusing on circular recycling systems—ensuring that aluminum products, whether used in packaging, transportation, or construction, can be collected, recycled, and transformed into new products without degradation.

Why Aluminum Is a Key Enabler of Circularity

Aluminum's recyclability is unmatched. Nearly 75% of all aluminum ever produced is still in use today[3], underscoring its longevity and circular potential. But beyond its infinite recyclability, aluminum's role in a circular economy extends far deeper:

- Energy Efficiency in Recycling: Producing aluminum from recycled material requires 95% less energy than primary aluminum production and results in only 5% of the associated carbon emissions.[3] This efficiency drastically reduces the industry's reliance on energy-intensive mining and smelting while lowering the environmental footprint of aluminum production.
- Material Retention Without Degradation: Unlike plastics and other materials that weaken with each recycling cycle, aluminum retains its full properties indefinitely. This allows for the continuous repurposing of aluminum across multiple product lifecycles—whether in consumer goods, vehicles, or even homes and office buildings.
- Decarbonizing Industrial Sectors: As industries shift toward low-carbon manufacturing, aluminum's circular properties enable businesses to reduce emissions without sacrificing performance. Recycled aluminum plays a critical role in sectors striving to lower their carbon footprint while maintaining material integrity.

Building a More Resilient, Circular Future

At Novelis, we are the world's largest recycler of aluminum and are on a mission to increase the recycled content in our products. Over the past decade, we have raised our average recycled content from 30% to 63%, with a target of reaching 75% recycled content as part of Novelis 3x30, our new, company-wide vision to advance aluminum as the material of choice with circular solutions.

Achieving this vision requires ongoing investment in recycling infrastructure, technological advancements, and industry collaboration. The more we innovate, the closer we get to closing the loop entirely—eliminating waste, maximizing resource efficiency, and creating a truly circular aluminum economy.

As industries and consumers recognize the value of endlessly recyclable aluminum, we

have a unique opportunity to accelerate the transition toward a fully circular economy—one that prioritizes sustainability, economic growth, and long-term resource security without compromising performance.

[1] Ellen MacArthur Foundation – "What is a circular Economy?"; What is a circular economy? | Ellen MacArthur Foundation

[2] Some melt loss occurs during the remelt process, which we currently estimate to be roughly 1%, though it can vary due to a variety of factors.

[3] The Aluminum Association - Infinitely Recyclable; https://www.aluminum.org/Recycling

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