



**Product
Stewardship
Centre of
Excellence**

**CASE
STUDY**



UBCO Motorbikes

In this case study, we examine the product stewardship approach of UBCO Motorbikes, a New Zealand-based company specialising in electric motorbikes. UBCO implements design-driven product stewardship to minimise its environmental footprint, utilising life-cycle thinking and prioritising ongoing improvement across its operations. UBCO has extended its sustainability efforts through partnerships with leasing companies, such as Motubikes, which offers solar-powered bike rentals for sustainable tourism initiatives.

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Product Stewardship in Action with

UBCO

INTRODUCTION

In this case study, we focus on [UBCO Motorbikes](#), a New Zealand-based company that designs and manufactures electric motorbikes. Whereas electric-powered motorbikes have an inherent sustainable advantage over petrol-powered vehicles¹, UBCO has a wide range of commitments to reduce its environmental footprint across the whole product life-cycle geared at increasing product lifespan and intensity of use, in line with circular economy principles. This includes product design informed by a life-cycle approach and collaborating to enable solar-powered e-bike rental.

THE EVOLUTION OF UBCO

UBCO Motorbikes, a New Zealand-based electric utility bike manufacturer, specialises in designing and manufacturing versatile electric motorbikes suitable for urban and off-road environments. UBCO aims to offer effective and eco-friendly transportation options that can be customised to suit different needs.²

For example, the initial fleet of UBCO vehicles was predominantly deployed in off-road scenarios, such as agriculture, tourism, land management and conservation, where they faced year-round, heavy-duty usage. Operating in these scenarios in New Zealand's challenging landscape provided valuable insights into the importance of durability and shed light on areas for design improvements.

This testing ground significantly shaped the 2X2 into a rugged vehicle that can be used in various environments. UBCO's products have become known for their design, functionality, safety, and commitment to sustainability as the brand has expanded into the Australian

¹ According to UBCO, the adoption of electric vehicles instead of petrol ones results in an 80% reduction in CO2 emissions, based on New Zealand data.

² UBCO. (n.d.). The UBCO Story. Retrieved from <https://ubco.com/pages/our-story>

³ UBCO. (n.d.). The UBCO Story. Retrieved from

and European markets.³

DESIGN-LED PRODUCT STEWARDSHIP

UBCO has worked to reduce the environmental impact of products through design-led product stewardship strategies. At the core of UBCO's product development process is a life-cycle approach, which involves considering a product's entire value chain.

Throughout each phase of the product's life-cycle, opportunities exist to mitigate environmental impact (in terms of carbon emissions) and improve product performance, from sourcing raw materials and energy for production to packaging, distribution, use, maintenance, and ultimately recycling, reuse, recovery, or proper disposal.⁴

UBCO's objective is to continually increase the durability, lifespan, and recyclability of each product generation it creates. The release of UBCO's GenX5 2X2 in 2020 marked substantial progress towards these goals, with the following product design improvements:

- Improved battery cyclic longevity by 30%.
- Enhanced design for disassembly.
- Reduced water ingress and corrosion through keyless ignition and fewer open ports.
- Improved motor efficiency by 20%.
- Supporting longer time between charges through three-stage regenerative braking.
- Solar panel charging option for the bike's power supply.⁵

<https://ubco.com/pages/our-story>

⁴ UBCO. (n.d.). Caring for People, Place and Planet. Retrieved from <https://ubco.com/pages/sustainability>

⁵ The 2X2 is charged via the provided UBCO charger, which can be connected to solar panels. (The incoming supply needs to be regulated with an inverter and

- Strengthened bike frame to ensure a long lifespan.
- Detailed care instructions to increase battery lifetime.
- Packaging with 100% recyclable cardboard and minimal plastic components.
- Online training for dealers and customers to eliminate the need for printed materials.⁶

Alongside these improvements, UBCO has undertaken research to measure the environmental impact of its vehicles compared to other vehicles. Their analysis found up to a 97% reduction in tCO₂e emitted over 100,000 km when comparing a UBCO motorbike to a diesel car.⁷

EXPANDING IMPACT THROUGH LEASING

UBCO has also expanded the impact of its vehicles by participating in a leasing program. [Motubikes](#) is an environmentally-oriented electric motorbike rental business on Great Barrier Island.⁸ Operating out of a repurposed shipping crate, Motubikes leases a fleet of nine UBCO 2X2 bikes and spare batteries charged entirely by solar power. This reduces the need for traditional energy sources and lowers the environmental footprint of the leasing service. It also increases the intensity of use, in line with circular economy principles.

Motubikes offers a low-impact way for tourists to explore the island using UBCO 2X2 bikes. With its solar-powered charging stations and compact setup, Motubikes aligns with the island's self-sufficiency culture and appeals to

requires a minimum of 420W solar output.)

⁶ UBCO. (n.d.). Caring for People, Place and Planet. Retrieved from <https://ubco.com/pages/sustainability>

⁷ AWD Electric Adventure Vehicles (2023). Sustainability Overview.

⁸ UBCO. (n.d.). 100% solar-charged electric bike hire

domestic and international travellers looking for unique, more sustainable, friendly adventures. This also demonstrates how product stewardship can align with and support sustainable tourism ventures through smaller, lighter modes of transportation.

NEXT STEPS

UBCO's focus on sustainability, efficiency and innovation has allowed them to develop innovative products and enabled the business to overcome some of the challenges of adopting electric motorbikes, such as high manufacturing costs and limited range.

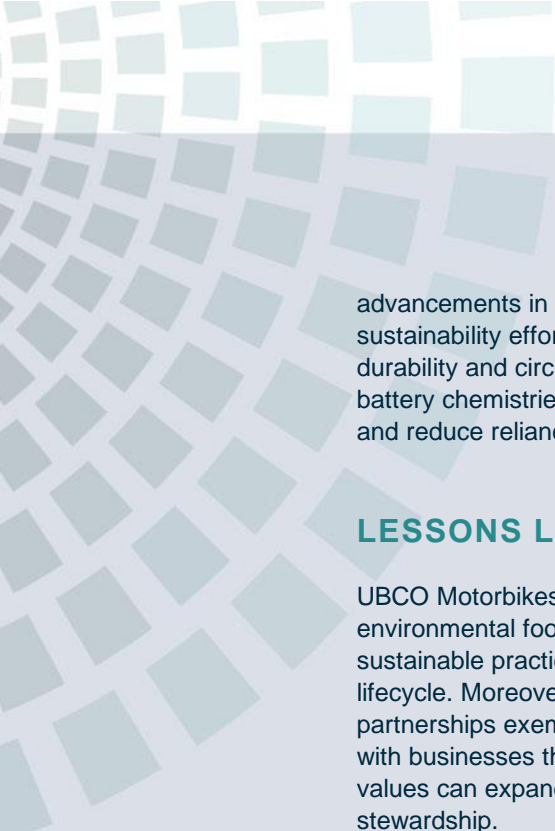
For example, in late 2022, UBCO's engineering team introduced several changes to the UBCO battery packs, which resulted in increased battery performance, reliability and longevity, alongside a new braking system that improved battery-pad life. UBCO is also continuing investment in battery management and software platforms.

UBCO recognises the need to partner with various stewardship organisations to progress its commitment to sustainability. For example, UBCO is involved in the Battery Industry Group, which aims to establish a product stewardship scheme for large batteries in NZ. It has partnered with Anthesis to promote global electric transportation growth and with Taiwan-based global technology company TPK to leverage working capital and manufacturing expertise to enable UBCO to expand production capacity over time. Ultimately, these partnerships aim to increase access to more sustainable transport solutions.⁹

Looking to the future, UBCO remains committed to ongoing improvements and

business. Silent Journey. Retrieved from <https://ubco.com/blogs/silentjourney/solar-charged-hire>. You can also learn more about Motubikes in action [here](#).

⁹ (2020). Anthesis and UBCO Partner to Expand Sustainable Transportation Globally. Retrieved from <https://ubco.co.nz/blogs/silentjourney/anthesis-and-ubco-partner-to-expand-sustainable-transportation-globally>



advancements in its product design and sustainability efforts. In addition to its focus on durability and circularity, UBCO is exploring battery chemistries that improve performance and reduce reliance on conflict minerals.

LESSONS LEARNED

UBCO Motorbikes is committed to reducing its environmental footprint by implementing sustainable practices across the entire product lifecycle. Moreover, their range of brand partnerships exemplifies how collaborating with businesses that share the same core values can expand the advantages of product stewardship.

NOTE:

The content of this case study is information of a general nature sourced from public sources and investigations conducted by the Product Stewardship Centre of Excellence. It does not represent advice, direction or endorsement from the Product Stewardship Centre of Excellence, nor does it represent the only method or practice to address the topics laid out in this document. Individuals or organisations are encouraged to conduct their own analysis and consideration of strategic options relevant to their situation before taking action in regards to the matters covered.

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