

DESIGN IMPACT CASE STUDY

RENEWABLES AND LOW EMISSIONS TECHNOLOGY

LAVO

Sydney, New South Wales

L A V O .

LAVO exemplifies how embedding design from the outset can shape breakthrough technologies into viable, desirable, and impactful solutions.

By navigating the full arc of the design maturity process with empathy, creativity, and scientific rigour, LAVO has positioned itself at the forefront of hydrogen-based home energy storage.

Its impact spans environmental sustainability, user empowerment, and commercial innovation, underscoring the transformative potential of design-led thinking in the rapidly growing renewable energy sector.



LAVO VIDEO CASE STUDY



LAVO DESIGN PROCESS MATURITY

DESIGN PROCESS STAGES	KEY LEARNINGS
<p>1. Define</p>	<p>The define stage began in 2020 as a collaboration between LAVO Energy and the University of New South Wales' Chemical Engineering Faculty.</p> <p>The foundational challenge identified was a critical one for the renewable energy transition: how to store energy when solar and wind sources are unavailable.</p> <p>Recognising this gap, the partnership aimed to transform a novel hydrogen storage technology, metal hydride, into a commercial solution that could bridge the intermittency of renewables.</p> <p>This clear problem framing catalysed the subsequent design and development efforts.</p>
<p>2. Empathise</p>	<p>During the empathise phase, LAVO undertook extensive market research to identify customer pain points.</p> <p>The findings revealed several key needs: affordability, ease of use, reliability, and longevity.</p> <p>Understanding that high living costs were a growing concern for consumers, the team focused on developing a cost-effective and dependable energy solution.</p> <p>The Design Team considered not just technical functionality but also the emotional connection and lifestyle alignment that the product could evoke, aiming to create something customers could trust, enjoy, and talk about.</p>

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DESIGN PROCESS MATURITY

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<p>3. Ideate</p>	<p>The ideation phase brought together a multidisciplinary mix of engineering, industrial design, and manufacturing expertise. The goal was to build a compact, safe, and appealing home energy storage system that utilised hydrogen in solid form via metal hydride.</p> <p>Creative collaboration played a key role in shaping the product as both a sophisticated technological solution and an aesthetically high-end appliance suitable for modern homes.</p> <p>Design elements such as thermal management, airflow, and sleek exterior finishes were refined in tandem with the engineering system to ensure both functional and emotional appeal.</p>
<p>4. Evaluate</p>	<p>LAVO's evaluate phase was grounded in the validation of both form and function.</p> <p>Extensive testing ensured the system's reliability and safety, particularly in addressing the perception of hydrogen as volatile.</p> <p>By storing hydrogen at low pressure, akin to a household gas bottle, the product reinforced a sense of everyday familiarity and trust. Continuous user feedback loops further informed refinements, helping ensure the system met performance standards and resonated with consumer expectations.</p>
<p>5. Launch</p>	<p>The launch phase integrated all elements of innovation into a cohesive and compelling product offering.</p> <p>The LAVO system was introduced not simply as an energy storage unit but as a lifestyle-enhancing technology that blended renewable energy innovation with user-friendly design. Its capacity to provide reliable energy storage while seamlessly fitting into domestic spaces marked a critical step in expanding hydrogen technology into the mainstream market.</p>

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EMBEDDING DESIGN TO DELIVER IMPACT

DESIGN IMPACT PILLARS	KEY LEARNINGS
<p>1. PEOPLE AND CULTURE</p> <p>Designing to improve the quality of life for society and citizens and to acknowledge and shape culture in a respectful and inclusive manner.</p>	<p>LAVO's commitment to understanding and serving users is evident in its approach to product development.</p> <p>Through market research and customer engagement, the team designed a system that aligns with real-world needs, affordability, ease of use, safety, and long-term reliability.</p> <p>The design not only addresses functional requirements but also engages users on a cultural and emotional level, reframing hydrogen energy as accessible and household friendly.</p> <p>By creating a product that blends into domestic environments while maintaining high performance, LAVO has contributed to democratising energy innovation.</p>
<p>2. PLANET</p> <p>Designing for Environmental Sustainability and Circularity.</p>	<p>LAVO Energy's technology directly supports environmental sustainability by enabling the storage of renewable energy, addressing a major barrier to broader adoption of solar and wind power.</p> <p>By storing hydrogen in a low-pressure, solid-state format, the system reduces the carbon footprint traditionally associated with energy storage and promotes circular energy flows within households.</p> <p>This capability allows for more consistent use of renewables, minimising reliance on fossil fuels and contributing to a more resilient and sustainable energy ecosystem.</p>

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EMBEDDING DESIGN TO DELIVER IMPACT

DESIGN IMPACT PILLARS	KEY LEARNINGS
<p>3. PROSPERITY</p> <p>Designing for Commercial and Economic Return.</p>	<p>LAVO's collaboration with academic institutions and its integrated design approach have laid a strong foundation for commercial success.</p> <p>By translating cutting-edge research into a market-ready solution, the company has carved out a distinctive space in the rapidly growing renewable energy sector.</p> <p>Its focus on high-end design, system durability, and mass manufacturability positions it for scalable growth.</p> <p>By addressing a key market gap in renewable energy storage, LAVO enhances its potential for long-term economic return while contributing to global energy transformation goals.</p>

DESIGN FOR A BETTER AUSTRALIA

We champion the power of design capability to deliver meaningful impact that fuels economic growth, strengthens communities, and shapes a more sustainable and prosperous Australia.

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