

Second-life battery based energy storage system

Refurb Battery analyses and reuses battery cells, lengthening their original lifespan and reducing waste and raw materials. Our storage solutions are powered with a 100% green energy, can electrify remote places and help with peak demand and grid balancing. We are based in and fully operate from the Netherlands.



the dream

WATT IF... the end was just the beginning?

Batteries power our daily lives. There is a rapidly growing volume of batteries being sold. Some market predictions point to a 100X rise in installed battery capacity in coming years. As more and more e-bikes, e-scooters and e-devices are brought to market, there is also a growing volume of returned used lithium-ion battery packs.

Batteries are collected, but there is no ecosystem in place to disassemble, test and reuse them. In the Netherlands alone, 300 tonnes of eBike batteries are disposed of each year, a volume that is expected to rise 20 to 30% yearly.

WATT IF... we worked the numbers (and the numbers worked)?

From 2023 onward, Refurb Battery will prevent 330 tonnes of material from going to waste, saving 100 000 eMobility battery packs from the shredder. Sounds great... but how does it translate?

130 000 000
cups of black coffee

amount of
reduced carbon emission
spared yearly

5 000 000
rolls of toilet paper

amount of
reduced carbon emission
spared yearly

8 500 000
cheeseburgers

amount of
reduced carbon emission
spared yearly

clevercarbon.io/carbon-footprint-of-common-items
openthefuture.com/cheeseburger_CF.html

But WATT IF... we can safely select, harvest, test and reuse battery cells?

Refurb Battery uniquely uses collected battery cells in energy storage solutions that can be used to electrify building sites, support electric vehicle charging or help grid balancing and peak demand management. With every battery cell Refurb Battery repurposes, we save raw materials, waste and energy.

We combine this product design with a business model that ensures all Energy Storage Solutions that Refurb Battery puts in the market are ultimately returned to Refurb Battery and reused or – if a true end of life is reached – recycled.



WATT IF... we reused instead of produced?

eMobility battery packs are collected by the EPAC foundation, the organization of eBike producers. We deconstruct these battery packs to their lithium-ion cells, the only partner certified to do so as of now.

SAFELY STORING ENERGY

There is a growing need for energy storage solutions. Businesses need to charge their electric vehicles or tools, deal with insufficient grid capacity, bring power on-site to manage their electrical machinery, reduce carbon or nitrogen emissions or make better use of cheap solar or wind power. This requires a lot of batteries. This is where our smart storage solution comes in.

But we don't stop there. As we handle thousands of used battery packs we have built deep understanding of the circularity of battery packs. And in some cases the lack thereof. Refurb has taken these insights to build our own battery modules in a 'design for circularity' way. The battery modules Refurb Battery produces are designed and constructed in such a way that reuse of components and replacement of defect parts is the default. Refurb Battery offers its business customers a battery solution that is designed for low carbon and raw material impact. Which compares very favorably to alternatives that in most cases are designed for use-and-recycle and in some cases use battery technology that is not even fit for recycling!



WATT IF... we made batteries better in their first life?

Instead of going to waste, battery cells are harvested from battery packs, checked and reused in safe energy storage solutions. Data from these quality checks improves the production process of new battery packs.

By thoroughly checking each battery on quality, we gather data and learn more about best practices. This data is used to improve the production process to make battery packs even better in their first life.



WATT IF... we worked together?

OUR TEAM

Until mid 2022, Refurb Battery was a pilot operation with a small inhouse team that relied heavily on external partners. Since then we have accelerated out of this pilot phase and have been ramping up our team. Bringing on board team members in Rijsbergen, Lelystad and Schiphol. The leadership team consists of:

COO

Rudolf Meulenberg

Rudolf has a long history in operations, process optimization and manufacturing. Learning the tricks of the trade in the automotive industry and technological multinationals. Rudolf leads all technical operations, from sorting to harvesting to module construction. His objective is to run stable high quality operations while rapidly scaling up.

rudolf.meulenberg@refurbbattery.eu

CEO & FOUNDER

Edwin Hexspoor

Edwin has a background as entrepreneur in B2B solutions and services. For many years he lead a Business Centre Northern Europe for a well-known Asian electronics company. Out of this Refurb Battery was born. Edwin is responsible for the overall scale up of the business and for all commercial proposition development and expansion.

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CSO & FOUNDER

Marty Smits

Marty has for 20 years worked with technology and B2B solution providers and consulted them on growth, innovation and new solution development. He has started and built businesses in renewable energy. Marty is responsible for growth and partnering strategy, for business model development and sustainability.

marty.smits@refurbbattery.eu

OUR PARTNERS

Edwin, Rudolf and Marty work closely together with a team of hands on experienced investors, expert partners and the growing Refurb team.



Organizes the collection, logistics, recycling, administration and compliance of multiple battery 'flows' in The Netherlands. Combines it expertise and drive for sustainability with Refurb Battery to jointly maximize the reuse of Li-On batteries in The Netherlands.



The organization of businesses that bring eBikes into the Dutch market. Responsible for organizing collective solutions for eBike producer responsibilities. Especially after use. Launching partner who early on identified the value add of reusing eBike batteries.



Leading European eBike manufacturer with a clear sustainability and circularity agenda. Partnering with Refurb Battery to pilot the Refurb concept. Working towards joint reuse maximization and 'design for circularity'.



Leading player in battery recycling in Benelux and Europe. Refurb Battery is working on site with Van Peperzeel to identify batteries that are fit for reuse. Partners share insights on recycling and jointly strive to maximize reuse and to optimize recycling.



Leading visioning and analytics company active in complex logistics. PrimeVision works with Refurb Battery to set up an end-to-end track, trace and learn data and insights infrastructure which will allow Refurb Battery to have maximum visibility on battery performance and degradation.



Leading designer and builder of high performance battery modules. Working in segments from Formula-e to custom made B2B modules. Power Battery is our battery module design and engineering partner and helps us optimize our modules for performance and circularity.



Conglomerate in engineering, project management, tech and people services. As one of the investors in Refurb Battery it supports with hands on people management, marketing, finance and support function expertise. ESG also partners to open up the large SME customer landscape for Refurb Battery solutions.



Front runner in EV charging and power solutions. Active since 2021 as part of a 100+ year old energy company. Hyvolt deploys the Refurb Battery Storage solutions as a modular part of its energy solutions. Providing a backbone for solutions in EV charging, peak shaving or grid connection.

HOW WE WORK WITH OEM PARTNERS

Refurb Battery was organized to maximize partnering and to deliver win-win solutions to OEM partners. Partnering with Refurb Battery brings several benefits to Original Equipment Manufacturers such as eBike brands. OEM's can reroute their used battery packs for reuse instead of recycling. This will benefit them in multiple ways.

Significantly improve reuse and recycle performance of all its used batteries.

As Refurb Battery is set up to comply with all regulatory reporting standards this comes with all statistics which are increasingly required by regulators. There may even be a cost benefit as today's high costs of recycling may be partially avoided if Refurb Battery and the partner are able to set up a working model where the costs of collecting and transforming used battery packs into reusable battery cells comes at lower costs than today's cost of recycling.

Generate rich data and insights on battery performance and with that allow OEMs to improve battery designs and support 'design for circularity' efforts.

Flexible and pragmatic, Refurb Battery works with its partners to help them take big next steps in circularity. Which can start with the basics of a more sustainable end of life, but can also evolve to developing OEM branded propositions based on reuse of their brand's pre-owned battery cells and all related co-marketing opportunities directed towards sustainability oriented consumers and investors.

YOUR CAREER AT REFURB BATTERY

Refurb Battery is growing rapidly. As we scale up we are building and professionalizing all core and supporting business activities. In Operations we provide attractive opportunities for line operators, team and floor managers and quality and process engineers. Our Energy Storage Solutions are put in the market as of late 2022. Growth needs to be driven by inhouse marketing. In the near future we will build up customer account and sales teams as well as inhouse service management. **Want to join our team? Get in touch.**

BUSINESS OPERATIONS

Refurb Battery is working from three sites in The Netherlands. The heart of the operations are in Rijsbergen in Brabant, near the border with Belgium. There our COO Rudolf Meulenberg leads the team that turns used batteries into quality tested battery cells and then constructs 'designed for circularity' battery modules. These modules are built into custom designed Energy Storage Solutions by partner Elmon in Groot-Ammer.

In Lelystad we work with our partners Stichting EPAC, Stibat Services and Van Peperzeel B.V. In a first-of-a-kind artificial intelligence enabled process we sort and select the battery packs we can reuse.

In our office at Schiphol we run daily operations, manage our partnerships, onboard new OEM partners, lead our data-infrastructure and engage with commercial partners.

As we expand our footprint we plan to set up operations in other geographies.

SCHIPHOL OFFICE

Schiphol Airport
Evert van de Beekstraat 1-100
1118 CL Schiphol

SORTING FACILITY

Van Peperzeel
James Wattlaan 6
8218 MB Lelystad

PLAN TO VISIT OUR PRODUCTION FACILITY? HERE ARE SOME DIRECTIONS TO HELP YOU ON YOUR WAY:

Refurb Battery is located in a brand new building, Business Centre Treeport. Can your GPS system not find the address? Try navigating to 'Rietvelden Breda' instead. When you reach the building, pass it and turn right, after that turn right again. You'll find us on the north-eastern side of the building. See you there!