Green batteries: Are they really the answer to the environmental crisis?

noco-noco
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As the world increasingly turns to electric vehicles (EVs) as a solution to curb greenhouse gas emissions and combat climate change, there has been a growing misconception that the batteries powering these cars are sufficiently green and eco-friendly. However, the reality is more complicated. While EV batteries have come a long way in terms of reducing their environmental impact, there is still room for improvement.

The myth of green batteries

According to the International Energy Agency, the global EV market is expected to see 14 million in sales by the end of 2023 – a 35% YoY increase in new purchases, with the electrification of road transport extending to two or three wheelers (especially in emerging markets and developing economies) and light commercial vehicles. The report goes on to forecast that the growing demand for EVs will continue to drive demand for batteries.

However, the production of these batteries is not entirely green. The manufacturing process of lithium-ion batteries (LiB), the most used batteries in EVs, requires the mining of rare metals such as cobalt, nickel, and lithium. These metals are typically found in ecologically sensitive areas, and their mining is associated with deforestation, water pollution, and other environmental damage. Additionally, the transportation of these metals, along with the manufacturing and disposal of batteries, further adds to the carbon footprint. And then there's the issue of rising material costs in recent years.

Then comes the use challenges – temperature is known to have a significant impact on the performance, safety and cycle life of the LiB, and heat is the worst offender. According to AAA, an EV battery's lifespan can decrease by 50% when exposed to temperatures over 25°C (77°F). In fact, many chargers prohibit charging above 50°C (122°F). Countries everywhere are feeling the heat as climate change brings about elevated temperatures. In such a situation, currently available LiBs hardly seem a long-term solution.

After all that comes the problem of disposal. When not disposed of carefully, many EV batteries end up in landfills, where they release toxic chemicals into the soil and groundwater. Not so great for the environment.

So, amid all these challenges, how do we make EVs and their batteries greener?

Perhaps the answer lies in creating batteries that last longer and retain their performance even at high temperatures, thereby avoiding the need to replace them too often.

noco-noco's decarbonization solutions

As a decarbonization solutions provider, noco-noco genuinely believes that less is more. Less overproduction. Less wasted assets. Less emissions across the value chain. More efficient use of finite resources. More energy optimization. And more tangible circular economies in energy use across sectors.

So, we're putting our energy into our proprietary battery technology that, in the latest tests, demonstrates high performance and durability (predicted to reach as many as 9000 cycles) at 60ºC (140ºF). Behind our improvements in lifespan and reliability of batteries is our proprietary technology with 3DOM Alliance's X-SEPA™ separator, featuring a unique structure and heat-resistant material used in combination with a high-temperature resistant electrolyte.

Together, this means a longer-lasting battery that can deliver undiminished performance in places like the Indian subcontinent, Southeast Asia, the Australian outback, Africa, or any place reeling from devastatingly high temperatures. And it could potentially be used in high-emission data centers.

A social infrastructure beyond truly green batteries

Achieving sustainable batteries isn't just a matter of the hardware – it's just as important that we are smart and efficient in how we use them. That's why noco-noco offers long-life batteries as a shared service to maximize their utilization.

> *Behind our improvements in lifespan and reliability of batteries is our proprietary X-SEPA ™ separator, featuring a unique structure and heat-resistant material, used in combination with a high-temperature resistant electrolyte.*

Figure 1: noco-noco's batteries equipped with 3DOM Alliance's revolutionary X-SEPA™ separator are expected to reach as many as 9000 cycles at 60ºC.

Source: noco-noco

Our battery technology will form the basis of a social infrastructure across carbon-neutral leasing (noco-noco Leasing) and, down the line, EVs fitted with IoT devices for data-light, smart energy optimization and usage. After being used in EVs, these batteries get a second life powering homes and businesses, to further drive circular economies in the sector. These solutions will enable customers to access clean energy solutions at a lower cost, reduce their carbon footprint, and contribute to a more sustainable future.

And the best part? Our solutions are manufacturer agnostic. Any manufacturer could potentially make batteries incorporating our technology. Because at noco-noco, we're taking a deliberate "Waste Less. Do More" approach in combining long-life technology with optimized usage models.

It's about reusing and maximizing resources, making things greener, and giving people affordable energy options. This is something we showcased in our inaugural participation at VivaTech 2023 – billed as Europe's largest tech and startup event (14-17 June 2023 in Paris, France). It was great to engage with savvy businesses from Europe, Africa, and South Asia among others – all seeking tangible energy solutions to accelerate their Net Zero journeys. And it was especially heartening to see the excitement and interest that our solutions and products generated across sectors like clean mobility and smart infrastructure – Reenforcing our conviction that transformation is just around the corner.

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