

Taking Batteries Green

Rechargeable Battery Technologies Offer Important Long-term Environmental Benefits

Growing concerns over issues such as climate change, carbon emissions, ozone-layer depletion, peak oil, and industrial pollution have raised alarms among consumers, business owners and policymakers worldwide. As more information becomes available about the long-term effects of environmental degradation caused by our industrialized society, governments and industry associations worldwide are starting to take increasingly proactive measures to protect the future of our planet and its inhabitants. However, arguments surrounding how far and how fast we need to move in order to effectively counteract mankind's impact on the environment can digress into complex discussions about the validity and possible biases of available data, as well as cost-benefit considerations that are difficult to quantify. Often times, these arguments gloss over our common obligation to serve as environmental stewards by incorporating simple and sensible steps into our daily lives that benefit the environment without introducing unnecessarily large costs.

The electronics industry must play a critical role in transforming our society into a more environmentally conscious global community by incorporating common sense solutions that reduce the e-waste stream. With more than 1.1 billion cell phones sold worldwide each year, the potential environmental benefits of a coordinated approach to reuse and recycling could be enormous, especially if all consumer batteries became replaceable. There would be even further benefits if rechargeable battery chemistries were substituted for disposable batteries wherever possible.

Through the use of battery holders rather than soldered-in connections, the vast majority of batteries found in consumer products could become easily replaceable, which would not only extend the service life of consumer products, but also reduce the e-waste stream. According to the EPA, Americans purchase nearly 3.3 billion alkaline batteries each year – a number that could be substantially reduced if consumer products were redesigned to operate on rechargeable batteries. And although rechargeable batteries often carry a significantly higher initial cost compared to alkaline cells, over the expected service life of a device, the switch to rechargeable batteries can result in significant long-term savings. For example, a pack of four AA rechargeable batteries may cost the consumer approximately \$50 initially, but provide years of service life with up to 500 recharges. Meanwhile, it could cost approximately \$1,000 to continually replace sets of disposable AA-size alkaline batteries over the same time period for that same device.



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Lithium-ion chemistry is rapidly emerging as the prevailing choice among rechargeable technologies. From consumer products such as cell phones, laptops, hybrid-electric cars, and electric cars, to industrial applications such as short term power storage devices for wind and solar power generators, lithium-ion batteries deliver top of the line performance and are far more environmentally friendly than nickel-cadmium rechargeable batteries.

It is time to take batteries green, but it will take the cooperation of everyone. Designers, manufacturers, and consumers will all need to work together in order to make the critical changes to the battery industry. The technology and logistics for recycling and reuse are available and ready, and there is no reason we can't start immediately reaping the environmental rewards. These are the simple, cost-effective steps we need to begin taking in order to preserve our treasured planet, and the sooner we start the better.



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