How Are Electric Vehicles Powered?

Electric vehicles (EVs) are powered using a rechargeable battery which is usually charged from mains power whilst in-situ for an average range of 194 miles. There are four main types of battery technology employed within EVs: lead-acid, the cheapest technology consisting of lead (Pb) and sulfuric acid ($H^+SO_4^-$); nickel-metal hydride, consisting of a metal, water (H_2O), and nickel hydroxide ($Ni(OH_2)$); zebra, which uses sodium chloroaluminate ($NaAlC_4$) and sodium (Na); and lithium-ion, the most common, which uses LiC_6 and cobalt oxide (CoO_2). All EV batteries function upon a reversible chemical reaction, enabling the batteries to be recharged for continued use.

The Problem

EV batteries are manufactured using alkali ~~metals~~ and transition metals alongside graphite and silicon which are extracted from minerals at the cost of the environment and large amounts of energy. This combined with the energy used to recharge the batteries accounts to large amounts of carbon emissions due to the primary fossil fuel supply for electrical energy.

Fixes

This problem can be resolved in a number of different ways, the most obvious of which is to reduce our reliance upon unrenewable sources of energy and to develop and use more efficient methods to recycle the materials within EVs and their batteries. Additionally, the ideal solution is - strangely - not to use EVs at all and

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instead to utilise fuel cell technology to develop fuel cell vehicles (FCVs) that are powered from entirely renewable substances such as hydrogen without the need for minerals extracted from the Earth.