

The Environmental Downside of Electric Vehicles

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At one time, “Saving the Environment” and “Fighting Climate Change” were synonymous. That is no longer true. The quest for Clean Energy through electric vehicles (EVs) epitomizes “the end justifies the means.”

According to the International Energy Agency (IEA), an electric vehicle requires six times the mineral inputs of a comparable internal combustion engine vehicle (ICE). EV batteries are very heavy and are made with some exotic, expensive, toxic, and flammable materials.

The primary metals in EV batteries include Nickel, Lithium, Cobalt, Copper and Rare Earth metals (Neodymium and Dysprosium). The mining of these materials, their use in manufacturing and their ultimate disposal all present significant environmental challenges. Ninety percent of the ICE lead-acid batteries are recycled while only five percent of the EV lithium-ion batteries are.

Oil has been so demonized that we tend to overlook some of its positive traits as a power source relative to the battery power of EVs. The power for an internal combustion engine, oil, is a homogeneous commodity found abundantly around the world (*especially in our own*

backyard). In 2019, the four top oil producing nations were the United States, Russia, Saudi Arabia, and Canada. In contrast, the power for EVs is dependent on a mixture of diverse commodities from just a handful of third world countries.

In spite of the environmental hysteria about oil drilling, the surface area disturbed is relatively small since the oil is extracted from under the ground. In contrast, many of the materials prominent in the clean energy revolution are obtained through open-pit horizontal mining which is extremely damaging to wide areas of the environment.

Nickel

Nickel, a major component of the EV batteries, is found just below the topsoil in the Rainforests of Indonesia and the Philippines. As a result, the nickel is extracted using horizontal surface mining that results in extensive environmental degradation: deforestation and removal of the top layer of soil. It should be noted that Rainforests play a major role in "fighting climate change" by removing Carbon Dioxide from the atmosphere through *photosynthesis*. The environmental battle cry "*Save the Rainforests*" needs to be replaced with a new slogan reminiscent of this one from the Vietnam War: "*It was necessary to destroy the village in order to save it.*" Here is the new environmental bumper sticker for all Clean Energy EVs: "*It was necessary to destroy the rainforest in order to save the planet*".

Lithium

Over half of the world's Lithium reserves are found in three South American countries that border the Andes Mountains: Chile, Argentina and Bolivia. These countries are collectively known as the "Lithium Triangle".

According to the Institute for Energy Research, Lithium is found in salt flats in very arid areas which complicates the mining process. A multi-mineral mixture containing Lithium is removed from beneath the salt flats. The Lithium extraction from the mixture is a lengthy, 12 to 18 months, evaporation process that is water intensive. Each ton of lithium produced requires 500,000 gallons of water. Besides the discarded mineral salt mixture, the process can result in water and soil contamination plus a depleted water table.

It should be noted that the United States is 4th in total Lithium reserves behind the Lithium Triangle countries. However, NIMBY (*Not In My Backyard*) environmental protests to "Save the Planet" have stymied efforts to develop the US Lithium market. It seems that our provincial "Earth-Firsters" want to maintain a pristine US, but have no problem turning a blind eye to the environmental exploitation of third world countries.

Cobalt

The Democratic Republic of the Congo (DRC) produces 70% of the world's Cobalt. While there is no shortage of environmental issues with its Cobalt mining, the overriding problem here is human rights: dangerous working conditions and the use of child labor. Cobalt is a toxic metal. Prolonged exposure and inhalation of Cobalt dust can lead to health issues of the eyes, skin, and lungs. Because Cobalt can be easily extracted from the ground by hand, small scale, bare-bones "artisanal" mines are common. The simplicity of the operation discourages/negates the need for occupational safety measures and encourages the use of child labor.

[According to](#) the Wilson Center, "small-scale mining in the DRC involves people of all ages, including children, obligated to work under harsh conditions. Of the 255,000 Congolese mining for cobalt, 40,000 are children, some as young as six years."

Amnesty International has also [made similar comments](#). "Thousands of children mine cobalt in the Democratic Republic of the Congo. Despite the potentially fatal health effects of prolonged exposure to cobalt, adult and child miners work without even the most basic protective equipment."

The "suspect" (bad) Cobalt is mixed in with the "legitimate" (good) Cobalt that comes from the large-scale mines that have the required safety standards and employ only adults. This co-mingling of "good" and "bad" Cobalt serves to mask the human rights abuses in the country's mining operations.

As it turns out, however, this charade is largely unnecessary since the majority of the DRC's cobalt mines are owned or financed by Chinese firms.

Eighty percent of the DRC's Cobalt ultimately ends up in China, a country not known for being a champion of human rights (the Uyghurs?). So, what is more important: *Fighting Human Rights Abuses* or *Fighting Climate Change*?

Copper

Chile is the leading producer of the world's Copper. The vast majority of Chile's Copper comes from open-pit/strip mines. This type of mining negatively affects vegetation, topsoil, wildlife habitats, and groundwater. The next three largest producers of copper are Peru, China, and the infamous Democratic Republic of the Congo. Number five happens to be the United States. Several states in particular, such as Minnesota and Arizona, show promise as new sources for domestic copper using underground mining instead of open-pit mining.

However, on January 26th, the Biden Administration canceled two copper mining leases in Minnesota. Commenting on the matter, Interior Secretary Deb Haaland said, “the Department of the Interior takes seriously our obligations to steward public lands and waters on behalf of all Americans.” This decision was applauded by the strongest supporters of America's quest for Clean Energy: Environmentalists and Democrats.

It's Time to be Honest about Clean Energy

In December, President Biden issued an Executive Order saying the United States government will “provide a strong foundation for American businesses to compete and win globally in the clean energy economy while creating well paying, union jobs [except in mining] at home. Today's executive action further reinforces the President's directive to Buy American [except for clean energy raw materials] and ensure that equity [in the US, but not in Third World countries] and environmental justice [in the US, but nowhere else] are key considerations.”

For all the “happy talk” about Clean Energy, our actions simply show a superficial commitment. We don't want to do the heavy lifting that it will take to make the transition to Clean Energy. Our role in the Clean Energy revolution will be limited to the final assembly of electric vehicles. But hey, that is good enough for our virtue signalling Earth First environmentalists and politicians.

What is needed, however, is an honest and comprehensive evaluation of the entire life cycle of clean energy from raw materials through disposition. There are pros and cons to all forms of energy. To date, all we have heard are the benefits of clean energy. It is now time to highlight the true costs of clean energy which must include the negative societal and environmental impact as well.



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