

Rare earths : Electric cars are as much or more polluting than diesel cars.

Germanium, boron, lithium, scandium, graphite, cobalt, indium, promethium, tungsten and other lanthanides are among the rare earths in the periodic table of Mendeleev elements. Under these terms of austere chemical names lies the future of many advanced technologies and our "eco-mobility".

Big problem: China appropriates a quasi-monopoly of the extraction and the refining of the rare earths.

Bobo-ecologist or simple responsible citizen, many are those who wish to combine the respect of the planet with a healthier air, and, icing on the cake, a better portfolio. So, it had been promised for a few years, the electric car was going to relieve our conscience and allow us to ride clean.

Despite sales that are struggling to take off, due in part to the purchase price, collective consciousness and state incentives have brought us close to a subsidized purchase of electric car without thinking.

But look out: well-researched evil spirits bring us a very dark truth: battery components and other new technologies have a calamitous ecological traceability.

They are in our everyday environment...

Electric vehicles are big consumers of rare earths (about 10 kg in a car) but also some wind turbines that require super-magnets to be productive. The energy and digital revolution, the information and communication technologies are also fond of them.

In total, it consumes 110 to 130 000 tonnes per year on the planet and the needs are exponential, growing by 10 to 20% per year. These constantly increasing needs, as well as the increase in the number of consumers, led to the intensified exploitation of the earth's crust to extract these minerals.

The problem is that their extraction and refining are highly polluting operations: rare earths must be separated from uranium and thorium, minerals that are by nature radioactive.

The globalization of trade has favoured Chinese production.

Americans and Westerners had, in the 80s / 90s, mining and refining industries. However, operators have noted the environmental, social and financial costs of this industry.

Environmental, because the pollution around the sites is extreme, and extracting without polluting is expensive. And social because this activity, which releases radioactivity, commits considerable damage on the workers and the neighbouring populations.

In China, we are talking about more than 300 "cancer villages" where one dies slowly, near the sites.

In the 1990s, China, anxious to generate capital inflows to stimulate growth, and little regard for its environment has significantly developed this mining branch, particularly in Inner Mongolia. The low costs of its salaries have done the rest to devastate the Western rare earth companies that have gone out of business, or have directly relocated their production to China or other low-cost countries, with little regard for health standards. Some of them were also bought back by Chinese investors, who then repatriated their technology to the middle empire to increase their "vertical development".

In France, Rhône-Poulenc (now Rhodia), one of the world's two major rare metal chemists, abandoned its production and transferred it to China in the mid-1990s. It is now one of the most polluting industries and more secretive in the Middle Kingdom.

Voluntarily and involuntarily, the Chinese have become the masters of the game in this mining industry including strategic and capital requirements. 90 to 97% of the production is

Chinese. With the flip side we know: unsustainable pollution in many places, not to say deadly.

China is aware of these problems and its population is increasingly sensitive: 70% of the protests in China are environmental.

The world factory will have to take into account the environmental and social price, at the risk of having to, in turn, relocate extraction or refining.

The twentieth century was the era of coal pollution, then oil. The new energy eldorado, is at least as polluting, but not here. Even though the earth is round ...

A geopolitical weapon :

World factory and major geo-political power, the middle empire has an absolute weapon here: It has the quasi-monopoly of rare earths without which the high-tech industries, including sensitive industries (weapons, space, telecommunication ...) are nothing anymore. Without rare earths no Airbus and no electric cars.

Scientists and economists have been hanging on the alarm for at least twenty years without being heard by politicians.

It is interesting to note the close political connection with North Korea, of which China is the only ally. This is clearer given that estimates of rare earth stocks in North Korea are 216 million tonnes. Which makes it virtually the number one producer in the world. With a population that will be a workforce subjected to an unscrupulous dictatorship and who will suffer the collateral damage of the extraction without having voice in the chapter.

Western countries were dependent on oil from the Middle East. They still are, and would like to escape. But they will not be able to spare themselves another dependence, not less delicate, that of the rare earths of Asia.

To avoid this, we will have to restructure the extraction and refining sector, to exploit the local sites, with acceptable environmental and social measures for our exacting standards. So, a high cost and not before one or two decades.

Are we producing and rolling more green?

According to a study from the University of California, Los Angeles, the industrialization of an electric car consumes three to four times more energy than that of a conventional vehicle. And according to a report from the Ademe, the energy consumption of an electric car is close to a diesel vehicle.

We can see here, under the cover of good intentions, we have been sold the dream of a greener world ... at our home but not at the others.

So it would be appropriate to produce vehicles with energy storage modes without rare earths? Without chemical batteries but with chemically inert energy storage? Respectful of the environment and the men who work there?

Fully composed of recyclable materials?

Impossible...

It would then be a principle of storage of energy that is not associated with the use of rare metals, or any pollution ...

You thought about the compressed air vehicle?