Can Environmentalists Handle the Truth about Mining?

written by Jack Lifton | July 13, 2021

The recovery of the amount of non-fuel natural resources necessary for the world, or even just the USA, or the EU, or China, to go "green" would simultaneously entail the construction of a massively enlarged minerals processing industry the likes of which the world has not seen since the creation and growth of the steel industry, which is and will remain the structural backbone of our civilization. Much of the sourcing and processing infrastructure that is needed for its own domestic consumption of natural resources has already been accomplished by China. But for the rest of the world, such resource recovery and processing onto useful forms at that "greening" scale would require the diversion of a significant percentage of national GDPs for decades. Such an allocation of capital would mean a realignment of class structures notably the obscene enrichment of an elite industrial ownership class in the USA and the EU, and a lower standard of living for most of their populations as energy in vast amounts would have to be more and more devoted to mining, refining, and manufacturing, and the costs involved when passed down to consumers would be all-consuming.

The resources necessary for greening the world are simply not available.

The "experts" mistake the notion of "earth abundance" for economically accessible. It is a fact that, for example, neodymium is more common in the earth's crust than lead. This fact is often cited by proponents of rare earth permanent magnet manufacture as the reason not to worry about running out of the

neodymium necessary to make all of the rare earth permanent magnets necessary for the "greening" of the world. But this is nonsense. The accessible deposits of rare earths, globally, allow the new production today annually of about 30,000 tonnes of neodymium while the annual new production of lead is 12,000,000 tons, approximately 400 times the rate of production as neodymium. The key to natural resource recovery is the accessibility, physically, chemically, and economically, with current technology, of deposits able to be developed into producing mines.

The key to processing the mineral ore concentrates from the mine is the availability of technology chains that provide the separation (from the other elements in the ore), the purification, and the transformation into user forms of the metals in question economically.

The mining and concentrating of most of the ores of the metals have the same processing technology and even remarkably similar extractions from the ore concentrate of solutions of the chemical salts of most metals. But the technology chains for the separation of, the purification of, and the metal and alloy making of, and the fabrication of useful metallic forms of the metals vary dramatically, In fact, the economics of any mine depends on the costs of the technology chain downstream of the extraction from the ore of the desired (and measured as, but not yet in that form) metal values.

In the case of the rare earths, any profits derived from mining them are entirely dependent upon the existence and efficiency of the downstream technology stream from the mine. What I will call the 2011 fantasy was the belief as stated almost universally by the junior miners of the time that they would sell a "mixed con(centrate)" of rare earths and make a profit. The universal myth of the time was that Chinese rare earth processors would

pay 65% of the basket price of the contained rare earth values. Then as now, that was a myth. At the time the Chinese were offering to pay at most 45% and then only counted the valuable rare earths such as neodymium, praseodymium, terbium, and dysprosium. The prices of rare earths used then, as now, in preliminary economic assessments (PEA), by junior miners were taken from the posted selling prices of rare earth finished chemical and metallurgical products in China. This was at best ridiculous and at worst disingenuous. I lean towards the latter explanation.

But the biggest problem with Chinese "lowball" pricing, which pundits saw as predatory was the fact that such prices did not include costs of health, safety, or environmental management. This did not and does not yet seem to matter to the "greens," who acknowledge the existence of Chinese mining practices not to disparage their predatory pricing but to discourage American rare earth mining as "dirty and polluting" as is its Chinese counterpart. The so-called "greens" here display their complete ignorance of American mining practices, which are probably the most regulated in the world with regard to health, safety, environmental management, and the remediation of land after the mine has become non-economical.

There seems to be a complete lack of understanding of where resources come from and how they are found, recovered, and processed into useful forms. Even more telling is the lack of understanding that to "green" our society we must dig into the black earth, mechanically and chemically concentrate the minerals we find, chemically separate them, chemically and pyrometallurgically process them into useful raw material starting forms, and then mechanically fabricate them into end-user (consumer) forms. The production of useful, necessary, and critical forms of metals and materials is **energy intensive**! Solar panels and wind turbines cannot even begin to supply the

concentrated power needed for smelters, steel furnaces, copper refining, aluminum production, and myriads of other energy intensive necessary processes.

Ramping up all of the necessary processes to provide the raw materials and finished goods for a “green” world would impoverish the world through the necessary diversion of energy required and the ultimate exhaustion of available recoverable resources.

The end of cheap energy and the ultimate rationing of metals and materials that would result from a “greening” of the world is the real existential crisis.