

Is there a Ford in your future?

written by Jack Lifton | March 12, 2022

The American Ford Motor Company, in its domestic operations, has now adopted the current business operations model of the Chinese OEM automotive industry, but lags far behind on the Chinese approach to critical materials supply security.

The Chinese like to emphasize that their approach to politics and economics cannot be wholly understood as just an example or even a simple variant of these disciplines as practiced in the West and applied to China. They refer to their economic system as Socialism with Chinese Characteristics and say that the operating focus of their domestic economy is now dual circulation, the emphasis of domestic consumption leading to a declining importance of exports.

Nonetheless, foreign analysts continue to view China with a Western academic definitions filter.

This has allowed analysts to miss almost entirely the critical details of the growth of the business operations model of the (now world's largest) Chinese OEM automotive industry as it has adapted to what the Chinese call the production of "New Energy Vehicles " (NEVs).

To avoid internal conflict and increase efficiency, large Chinese auto companies now usually set up a separate NEV unit that runs independently from the traditional ICE car business.

I don't know James Farley, the CEO of the Ford Motor Company, personally, but I do know that he is among the most perceptive and far-seeing of American OEM automotive top managers, and one

who actually understands the business of manufacturing of cars and trucks and the markets for those vehicles. How do I know this? By the action he announced last week that reveals his financial and market acumen. The Ford Motor Company has announced that it will separate its EV operations and its ICE operations into two separately managed and organized internal units, each of which will focus on a powertrain. There will be the Ford Model-e Division and the Ford Blue Division. The Presidents of both divisions will report directly to the CEO, now Jim Farley.

As Farley states: "We still think that more than half our customers are going to be ICE, and they're going to be ICE for a long time," Farley said. "It's almost like our industry's kind of given up on that business. Even if the unit volume starts to fall over when mass adoption of electrification happens, in a lot of segments that's not going to happen, and we want to have a dedicated team to run that business with passion."

So, now, at least, one of America's remaining, "Big Two" automotive OEMs have caught up with Chinese management "style" in product development.

But, there's one more area where Capitalism with Chinese characteristics has outpaced the rest of the world. That is in security of supply of critical raw materials. China has an industrial policy that supports key industrial development, and it has had that policy for a long time.

When the Chinese domestic OEM automotive industry was in its infancy a generation ago China rapidly developed the domestic capability and capacity to produce a secure supply of raw materials to make ICE powered vehicles. Those main materials were steel, aluminum, copper and plastics. China soon overtook the USA and indeed the rest of the world combined in the

production of those critical industrial materials.

About 6 years ago the Chinese government decided that the electrification of land transportation was critical to hedge against China's dependence on foreign fossil fuels and to reduce pollution in its rapidly advancing urbanization. Accordingly, the government set out to determine what materials would be critical for such developments. Lithium-ion battery and rare earth permanent magnet motor construction materials were determined to be priorities, and a national program to find them, extract them, process them, and manufacture end-use products dependent upon them for their function was added to the five-year plan system of formulating and carrying out industrial policy. Today, China has sufficient domestic secure supplies of materials and processes already in place to build all of the BEVs it plans to build through most of this decade.

This is where America and Europe are woefully far behind.

Neither the Ford Motor Company nor anyone else can afford to wait for their national governments to catch up with China's industrial policy planning and execution.

There is nowhere near enough non-Chinese production and processing of the critical materials for batteries and electric motors to fulfill any but a small part of the planned non-Chinese production of BEVs, wind turbines, energy storage, aircraft and ship components, and consumer goods.

It's going to be every company for itself. I am hoping that the non-Chinese OEM automobile industry learns from the chart below what it will take to survive.



I am not optimistic.

Jack Lifton on the Real X-Factor in the Critical Materials Supply Chain

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America's permanent civil servants, otherwise known as the employees of Federal agencies and the staffers of the elected officials of both local and national governments, are required to believe in the efficient market hypothesis as promulgated by the credentialed clerisy, in this case the Chicago (Milton Friedman and his disciples) School of Economics. This school holds that it is a law of nature that the demand for and the supply of any commodity will always trend towards an equilibrium in which the one equals the other, so that, for example, if the demand for copper wire exceeds the supply then capital will pour into the copper production industry until the supply equals the demand, or prices for copper will increase so as to deflate the demand increase, or some combination of both will occur.

Since there is no infinite reservoir of copper just waiting to be mined, refined, and fabricated by the driver of increased prices, the efficient market hypothesis fails to be reliable when the real world is involved.

This would, of course, be common sense if not only the correct (Ivy League) education, but also first-hand knowledge, experience, and skill in the particular subject matter were valued in Washington, DC. They are not.

What the Chinese refer to and define as "New Energy" is the

production of electricity by means other than using fossil fuels for heating water to a boil and using the steam to spin turbines. This definition includes solar, wind, fuel-cell, nuclear, and recently commercialized chemically based rechargeable storage devices and systems such as batteries. Thus, all, or in-part (hybrids) battery powered, fuel cell powered, and even hydrogen powered (internal combustion engine) motor vehicles in China are called “new energy vehicles” (NEVs) and I am going to adopt that terminology here.

The contemporary market for NEVs globally is primarily driven by politicians, not consumers. In authoritarian industrial economies such as China, consumers can be forced to demand NEVs by laws and ultimately by the mandated production of only NEVs. This is known as industrial policy planning. In the free-market economies, politicians attempt to do the same thing by artificial price manipulation, aka subsidies in the form of tax incentives or outright grants to make prices appear lower than they actually would be if only efficient market dynamics were involved. These payouts sourced from taxation are known as “free money” in the capitalist economies. This free money is of course a transfer of wealth from the general population to the wealthiest by the pretense that it is for the common good.

Legislators (a.k.a., politicians) attempting to drive, not just influence, the consumer market for energy use, do not understand thermodynamics as applied to the production and use of energy by man-made devices. The relatively inexpensive electrical energy derived by burning fossil fuels cannot economically or efficiently be substituted by more expensive methods of transforming sunlight and wind through the use of the scarce resources of the electronic and magnetic properties of metals that are scarce mainly because of the energy needed to collect, separate, purify, and concentrate them. That energy can never be recovered by using them to transform light energy or the kinetic

energy of wind into useful forms of electricity. Alternate energy construction economics fails with wind and solar.

It is argued that, even so, such relatively inefficient methods of energy production are a common good, even a necessity, since their purpose is to preserve an environment that is best for human beings. This is a moral judgment not a scientific one, in any sense. In an open system, it is not possible to balance or preserve or recycle energy efficiently. The world is an open system and pretending it is a closed one is a thought experiment and is not realistic.

Natural resources available to us are limited by the amount of energy we are able to deploy economically to extract, refine, and fabricate them into forms useful not to the inanimate world but to our species for its comfort, health, safety, or survival. Extracting particular resources means reversing the natural forces that created and mixed them together in the first place, and this always needs an excess of energy input over what is recoverable from the use of the resource.

Natural resources are not organic. They do not reproduce themselves. Human beings use and must continue to use the energy of fossil fuels to produce the structural metals necessary to recover relatively tiny amounts of technology enabling metals for energy transformation and then pretend that the relatively small and expensive amounts of useful energy obtained by the use of the electronic or magnetic properties of the technology enabling metals are saving the world, but the net irreversible flow of energy used to obtain these metals overwhelms the useful production of electricity obtained and due to the fact that the new energy generators wear out (I.e. return to their natural oxidized and useless state relatively rapidly) can never be recovered. In fact, additional energy must be applied to recycle them to the metastable state in which they are useful. Peter is

being used to rob Paul.

A good example is the production of [lithium](#) for lithium-ion batteries. The best deposits of lithium currently used to produce it are the South American brines in which the lithium content is 2000 parts per million or 1/5 of 1 percent.

In order to produce 2000 tons of lithium, it is necessary to process 1,000,000 tons of water! It will be argued that most of the energy necessary for this is from natural solar evaporation, so that no fossil fuels need to be burned to create it. However, it must be noted that half of the world's lithium is still derived from hard rock deposits of the mineral spodumene. The average run of mine grade of spodumene is 1% Li, measured as metal, so that 2020's 50,000 tons of Li from spodumene required the moving, crushing, and processing of 5,000,000 tons of rocks.

The 140,000 tons of cobalt, measured as metal, produced in 2020 required the mining of 30,000,000 tons of copper and 2,500,000 tons of nickel in both of which the run of mine content of Co was less than 0.5%. The rock moved to produce this amount of copper, nickel, and cobalt was 3,000,000,000 tonnes.

The energy necessary to mine, crush, roast, smelt, extract, separate, purify, and fabricate these metals into useful forms is staggering, and it is all produced by burning fossil fuels!

Just as the Chinese were allowed to set costs of producing rare earths without considering environmental degradation, health, and safety so western politicians do not consider the energy costs or source development necessary to produce New Energy.

The Chinese minimize their need for the most energy intensive part of resource production, mining, by buying and importing ore concentrates whenever and from wherever possible. Lately, this has included even the rare earths. America and Europe have

fallen far behind China in globally sourcing mined materials.

The amount of energy just consumed in mining, but not refining critical materials outside of China is staggering. There is no way this can be economical or efficient. This need for energy will inhibit the development of countries such as the DRC in Africa, slow the development of Chile, Argentina, and Bolivia and raise the cost of living in Australia.

The prices for the critical metals for new energy production will continue to rise but if present trends continue their supply will only be what is leftover from Chinese domestic needs and from those sources outside of China not controlled by China, because it doesn't need them. China is the single largest producer of electricity of any nation; it has already allocated the necessary power for its new energy construction as well as obtained the necessary flow of raw materials without impeding its consumer's needs for their standard of living.

No one but the Chinese has looked at the life-of-mines of critical natural resources. This is the key to a new energy future.

The laws of nature supersede those of economics.