



***“When the time comes to raise interest rates, we’ll certainly do that, and that time by the way, is no time soon.”*** - Federal Reserve Chairman Powell, January 14, 2021.

Most people are just fine saying sayonara to 2020. The pandemic caused us to put life on hold as we waited for it to pass or for a medical solution to contain it. The virus, as advertised, proved to be a heinous strain, and we are in the early innings of vaccinations which are being highly touted as a suitable defense. We’re hoping vs knowing the spread of the COVID will slow, business will trend to normal, and we all get back to living without fear of contagion.

As we write, equity markets have continued to rally into the new year. The “stay-at-home” stocks have resumed their hyperbolic trend, and quite frankly speculation is morphing from excessive to manic. Case in point: Elon Musk mentions a messaging app called Signal on January 7th. Within just a couple of days shares of Signal Advance rallied from 60 cents to \$33! This certainly qualifies as a hyperbolic move, but Signal Advance has nothing to do with the company Musk mentioned.

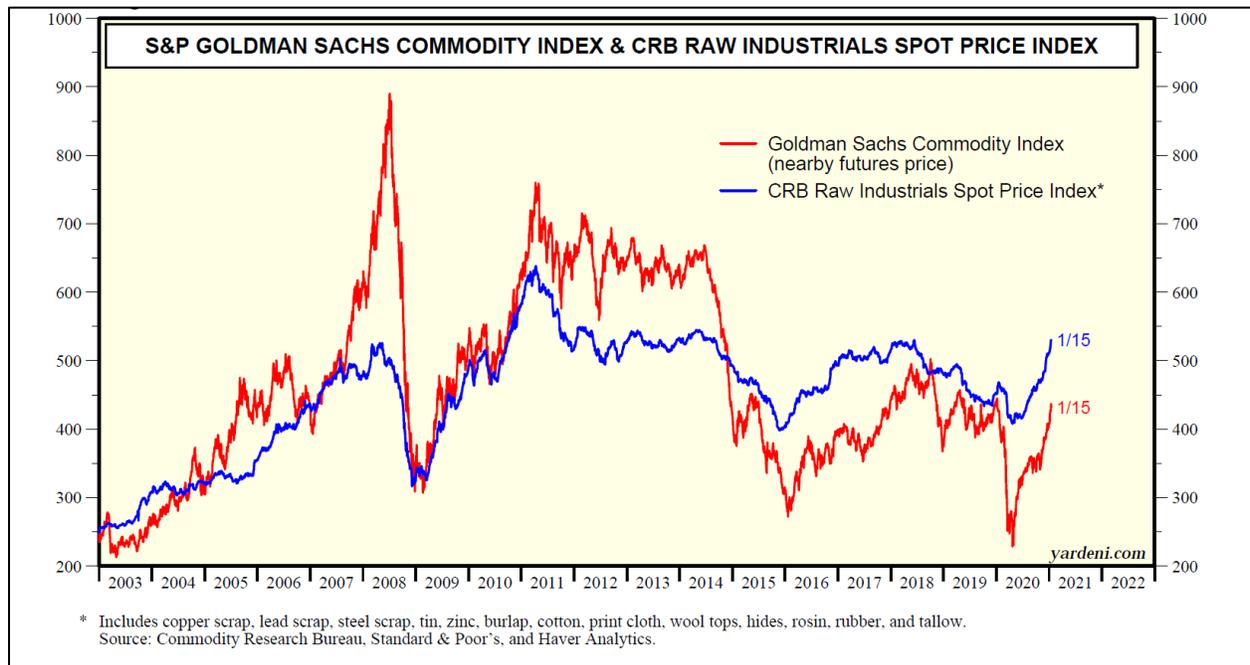
Last month we mentioned the price action of IPO’s with great business models and future projections being priced today as if all those projections are facts. We highlighted AIRBNB with \$100 Billion in market cap and NO EARNINGS YET! We are not so insolent as to suggest the speculative activity won’t persist or even accelerate. We’re simply suggesting to beware!

On shorting expensive markets, John Maynard Keynes once quipped, “The market can stay irrational longer than you can stay solvent.” As we peruse Wall Street predictions for 2021, expectations for a quick victory over the virus with concurrent improvements in economic growth have the majority bullish on equities - just like every year! An old friend taught us to be less concerned with what we don’t know than what we do know that ain’t so.

### **The Dance Between the Dollar and Commodities**

We began this missive with a quote about interest rates - or the lack thereof. Central banks continue to buy bonds and, in some cases, also equities. We have received little guidance as to the timing of the termination of this practice, although we must be getting closer to the tipping point when investors lose confidence in the policy. How many dollars can the Fed print before we experience a devaluation of the dollar from either waning confidence, inflation or both? If and when that day occurs, bonds should lose value and equities should gain less. Traditionally a basket of commodities appreciates as the dollar decreases - not always, but enough for us to explore the investment thesis for commodities when prices for stocks, bonds, cash and real estate are dear.

The following graph illustrates the price for a basket of commodities over the past twenty years.



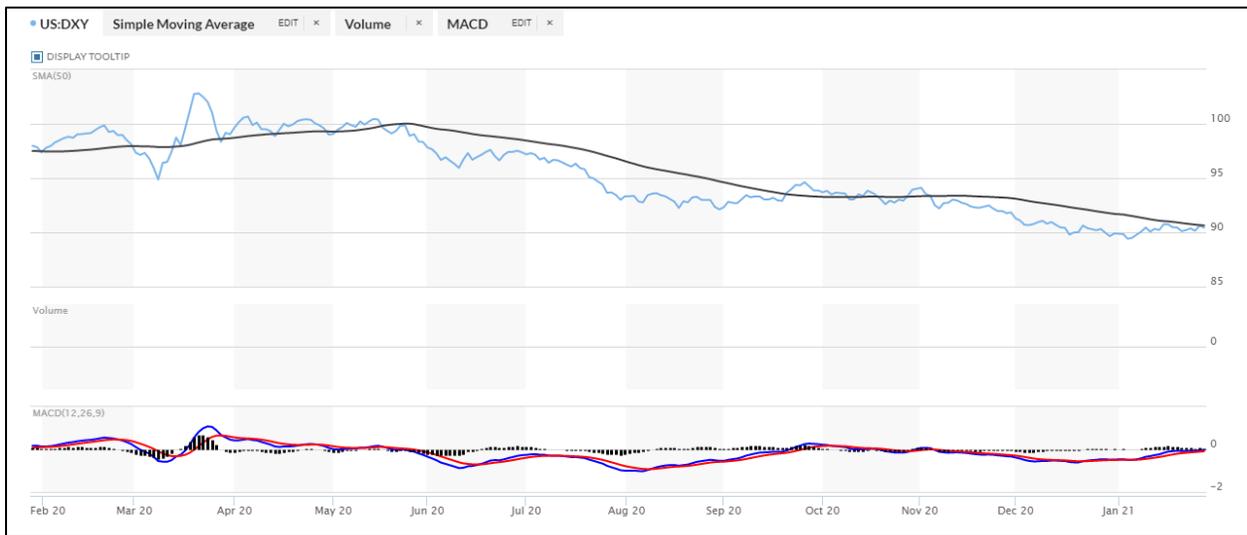
Source: Yardeni.com

Unlike the chart for equities, commodities continue to trade significantly below the 2008 highs. Apart from some metals used to build EV batteries and solar equipment most commodities, especially those related to carbon energy sources, have been decimated.

Understanding the pricing for commodities is rather easy. When demand exceeds supply, prices rise. As prices rise, suppliers rush to produce more - often to extremes and to the point when supply exceeds demand and prices fall. As prices fall to or below production costs, suppliers begin to produce less or exit the business. And the cycle starts anew.

Certainly, other macro factors influence commodity pricing. Economic growth and population growth create benign conditions. And then there is the strength (or weakness) of the US dollar exerting an interesting and fairly consistent pressure on prices. As the dollar appreciates, the purchasing power of competing currencies diminishes, lowering commodity demand. As the dollar depreciates, the purchasing power of competing currencies improves, strengthening commodity demand.

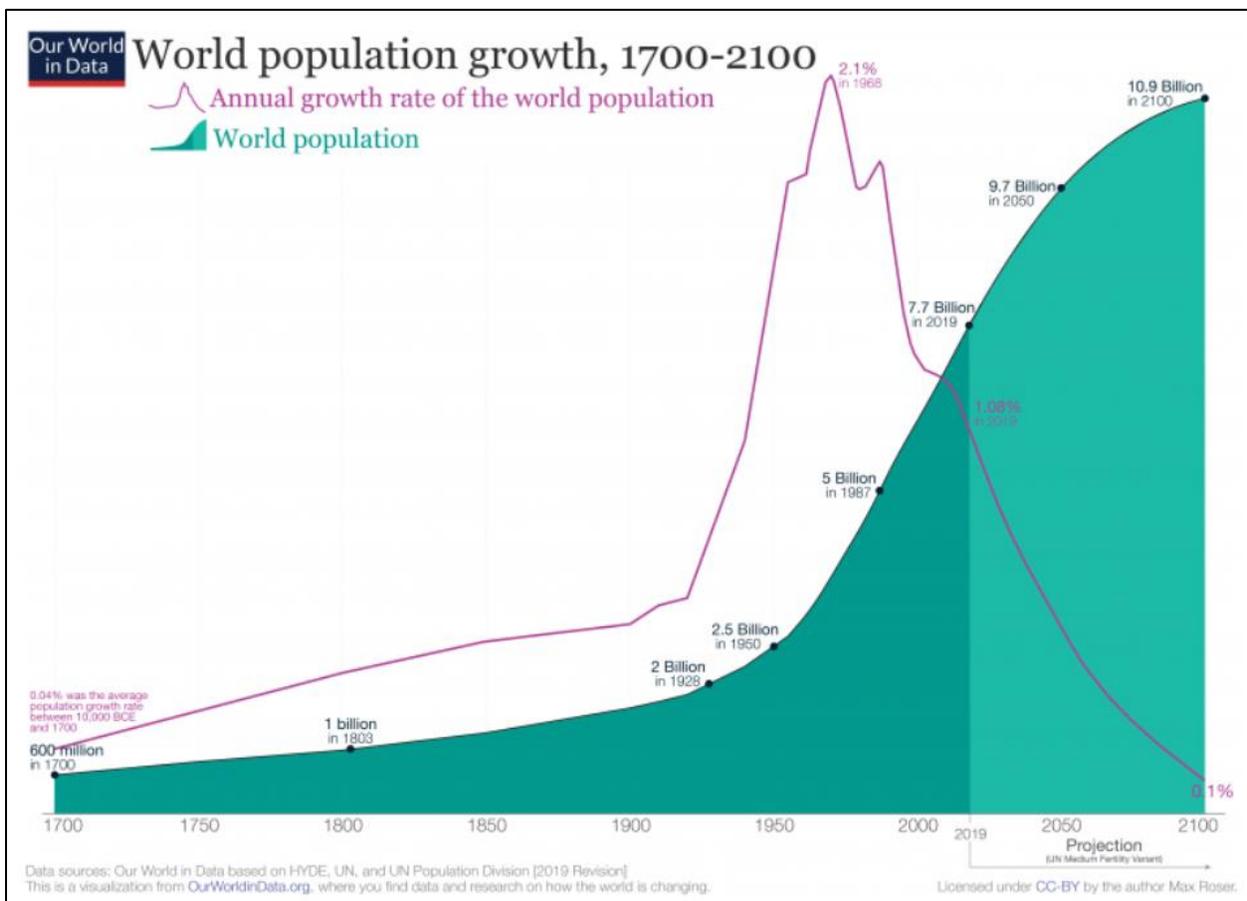
As we have argued in earlier missives, the unintended consequence of a decade of printing money with no definite end in sight could be significant downward pressure on the dollar. If we look at the movement of the dollar, you will observe that the positive bounce off the 2020 low for the CRB Index is accompanied by a 10% drop in the dollar index.



Source: Marketwatch.com

### The Population Impact

Fifty years ago, the global population totaled 3,700,437,046. Today it has more than doubled to 7,794,798,739 and is projected to grow to 9,735,033,990 by 2050.



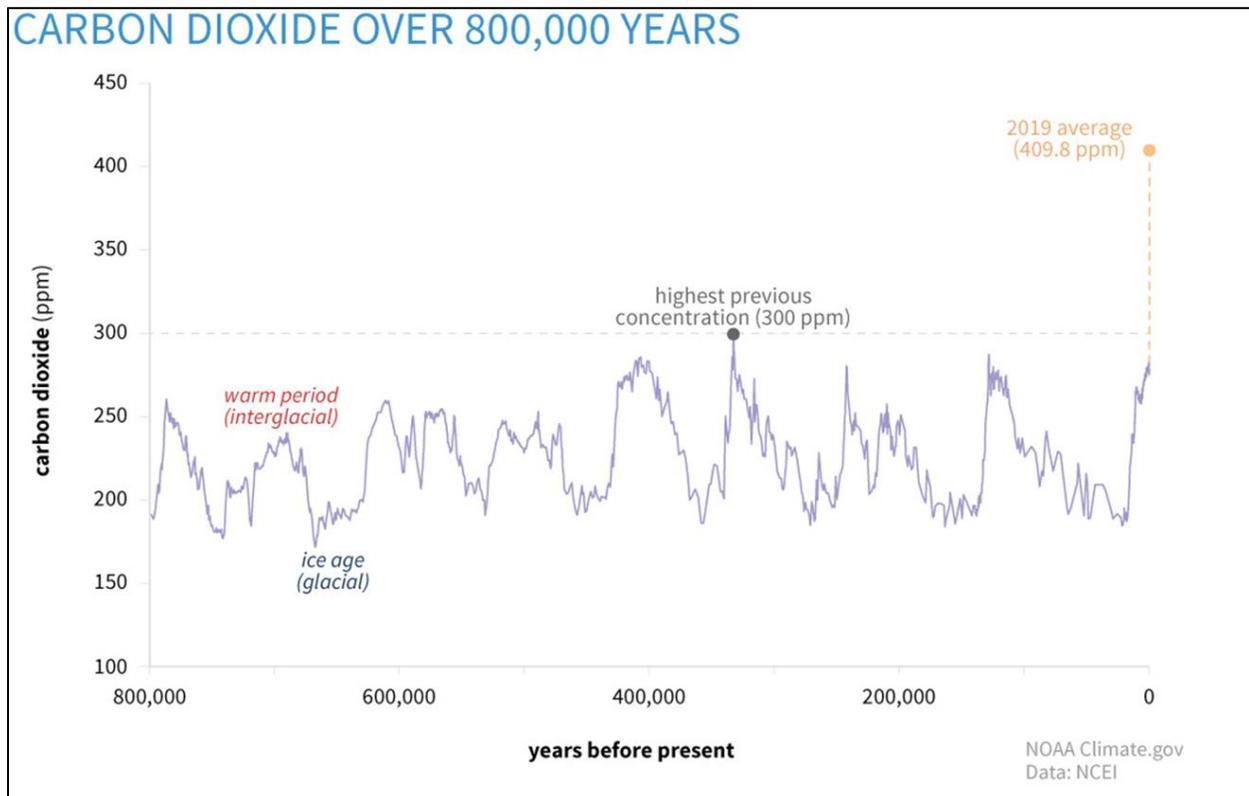
Source: ourworldindata.com

The important long-term problem is how do we feed, clothe and house three times as many people with the same resources? In 2050 The same unit of land will need to satisfy three times the needs of those it satisfied in 1970. The answers to population growth thus far have included improved productivity, conservation, improved distribution, diminished spoilage, genetic engineering, and the advent of alternative energy sources. We should note here that a

significant contribution to population growth has been the fact we are living longer. World median age in 1970 was 22. Today it's 31 and in 2050 it's estimated to be 36. The benefits of longer healthier living are not equally distributed however, as the World Bank estimates 2 billion people still live in poverty (half in extreme poverty) and an overwhelming percentage abide in sub-Saharan Africa. We are aware of the political discussions to alleviate conditions of poverty and while we chose to not comment on political remedies, we will simply remark that improvements inevitably will require those who supply our commodity needs will need to produce more – much more.

### Carbon Derived Energy Sources - Down But Not Out

Energy production has morphed into the most polarizing political football of our time. Carbon derived energy sources have been responsible for driving the engine of economic growth for the past century. But many will argue that it's done so at the expense of our environment. Don't worry, we are not taking a side in this writing, only suggesting the argument over the benefit vs environmental costs of carbon energy sources will occupy the halls of Congress for decades to come. Courtesy of Jeremy Grantham, the chart below (chart 4) shows historical CO2 levels in our atmosphere.



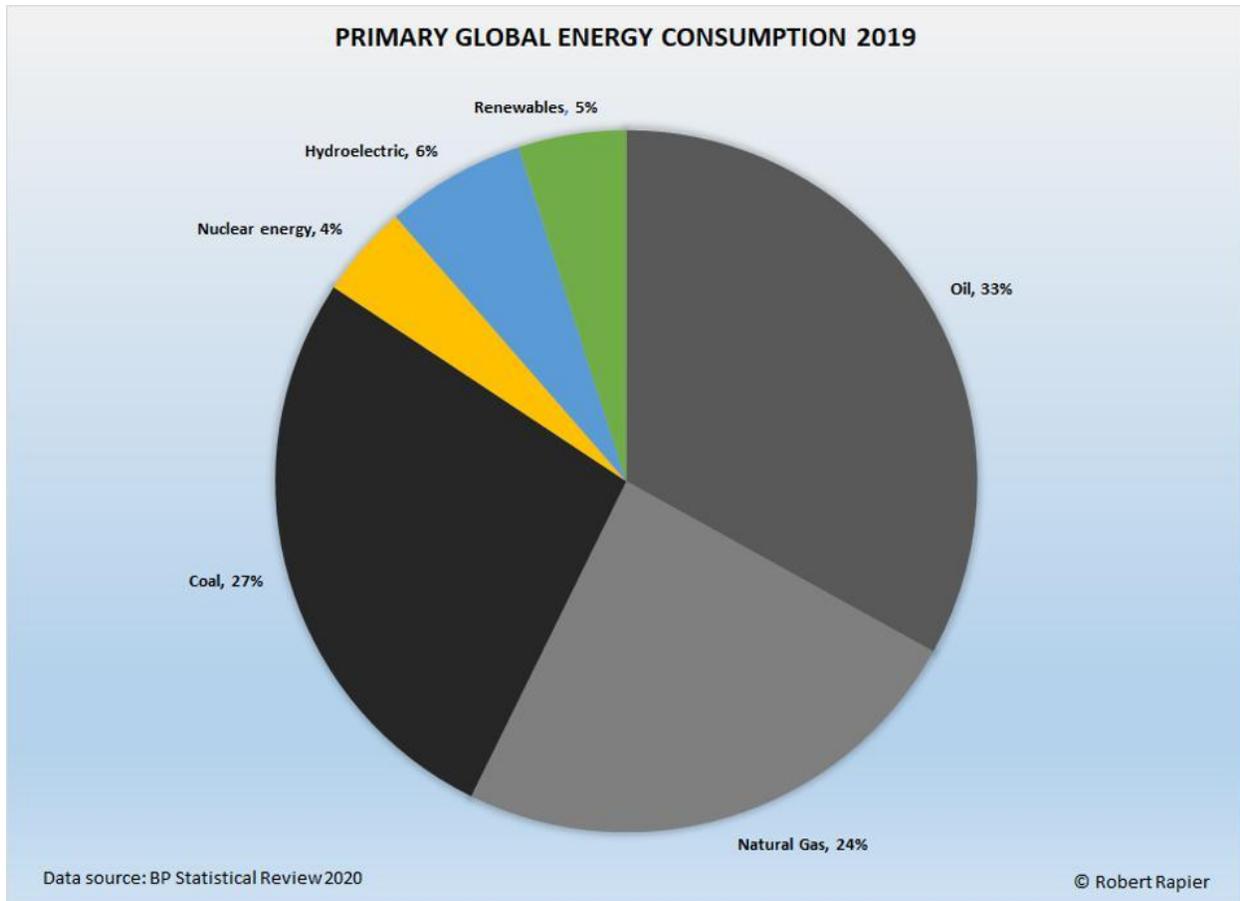
Source: Climate.gov

200-300 parts per million of carbon dioxide is considered perfect as Grantham frames CO2 at these levels “the perfect greenhouse gas.” Too little and you get frigid temperatures. Too much and you get global warming. In 2019 CO2 levels were at 419 parts per million. And yes, average temperatures did rise several degrees over the past century. Again, we are not taking sides on this issue. Our job as an agent for your wealth is to simply identify the trends and find ways to capitalize on them.

As discussed last month, carbon equities fared poorly during the Trump administration while alternative energy investments attracted money. Upon inauguration, Biden immediately suspended the Keystone XL pipeline project. Is this order simply symbolic or the fist volley in a

war on carbon? Regardless, carbon energy production in the US will be more encumbered. That will raise prices unless the growth in alternative energy sources dramatically reduces demand for carbon. As you can see, that's not likely anytime soon.

The following graph of global energy production had us do a double take. Only 5% of global energy consumption in 2019 came from renewables!



Source: BP Statistical Review 2020

According to The International Energy Agency "rising income, urbanization, and improved access to electricity will lead to a 79% increase in electricity generation by 2050. Our investment posture on energy is quite positive. The size of the market will grow (almost double) and the political will and pressure toward Green energy (right or wrong) will benefit the companies that can navigate these conditions.

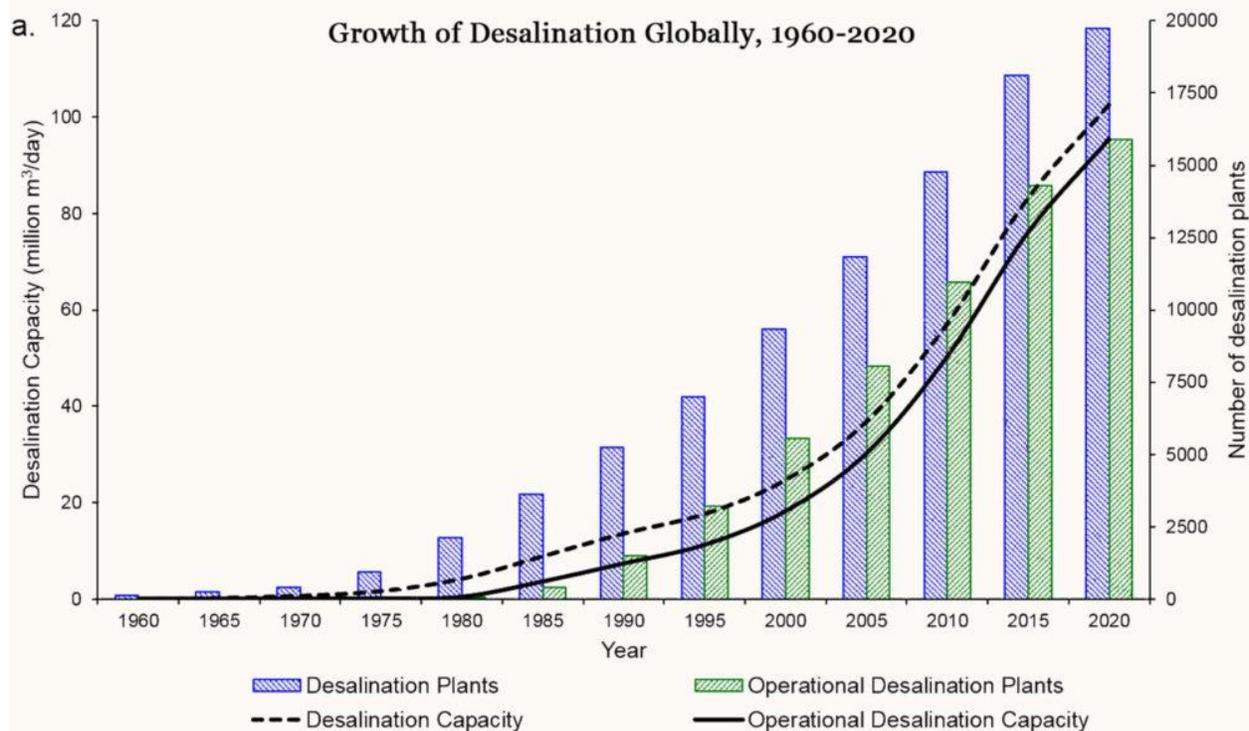
### ***"Water, water, everywhere, nor any drop to drink" - Rime of The Ancient Mariner***

Most of the world's water supply is held in the oceans. Only a small percentage of the world's fresh water supply is in rivers, lakes and aquifers. Few countries have a surplus and the US is especially blessed to be one of them. However, that blessing is diminishing.

On average, we each use 80 to 100 gallons of water every day. If you live with us in Georgia, the price we pay for water is benign and except for the occasional drought, we consume it as such. But for much of the world, water scarcity is a daily problem. Pollution, drought and flooding, irrigation inefficiencies, aquifer collapses, inconsistent weather patterns and growing populations are blamed for the scarcity. 70% of the world is subject to drought conditions at some point every year. 500 million people live permanently under drought conditions. Wars over water are possible. In Georgia we battled Florida and Alabama just a few years ago as we

suffered drought here while the Core of Engineers depleted our existing water supply to the benefit of the mussels in the Gulf. Water levels in Lake Lanier dropped twenty-five feet south of full pool. But oh boy were those mussels tasty!

Solutions to water scarcity include desalination, improvements in irrigation, rainwater collection, conservation measures and devices, and refilling aquifers. The following graph measures the growth of desalination.



Source: Yale Environment 360

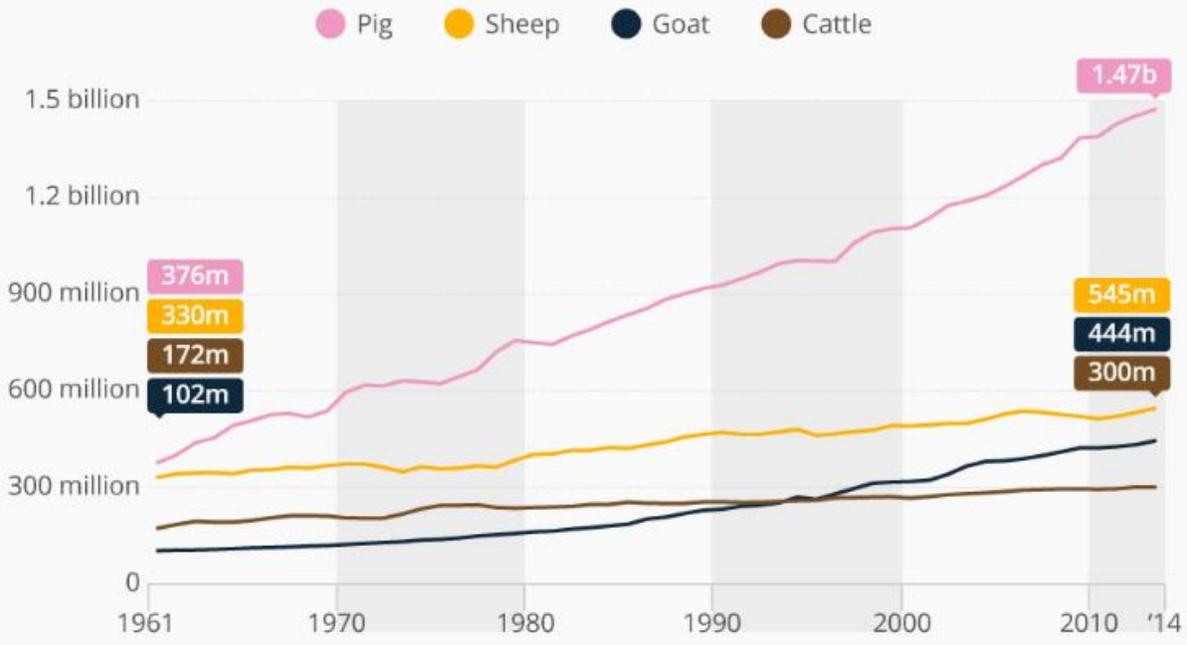
We have been arguing the case for water investments for some time without providing investment solutions which we think adequately represent the opportunities we see. We're still looking!

### Farmland – Producing More From Less

Any current discussion on scarcity should include farming. Much of the world and even too many in this country suffer from malnutrition or even worse, starvation. Some of the misfortune lies in the unequal distribution of productive farming environments as articulated in Thomas Sowell's book *"Wealth, Poverty, And Politics."* In it he suggests "The fundamental reality of any civilization must be its geographical cradle." Geographies with access to water, temperate climate, fertile land and abundant natural resources favors those so blessed over those without. The US is obviously one of the blessed! Those living in Siberia, Sahara, and many other parts of Africa are not. Unfortunately, arable land is on the decline. Reasons include poor farming practices, flooding, drought and irrigation issues, and alternative land uses (think civilization growth worldwide in fertile river valleys - in Atlanta that's a new subdivision on the Chattahoochee River). Add to that the growing demand for land to used for protein farming both in established and emerging economies – and it's a bad omen for pigs!

# How Many Animals Do We Eat Each Year?

Number of animals (livestock) slaughtered for meat each year\*



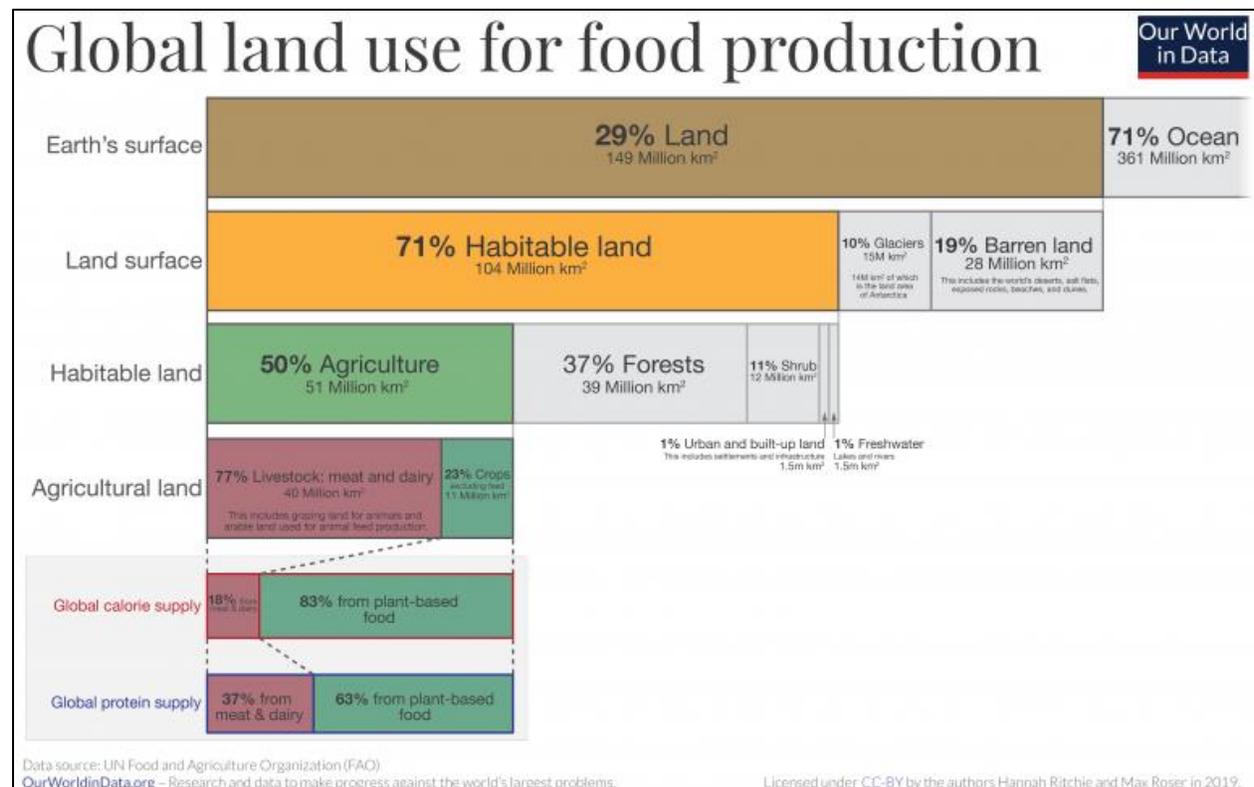
cc i @StatistaCharts

\* Up to 2014 – most recent year data is available (excluding poultry)  
Source: UN Food and Agriculture Organization via Our World in Data

statista

Source: Statista

The following chart shows an approximate breakdown of land use around the world.



Source: ourworldindata.com

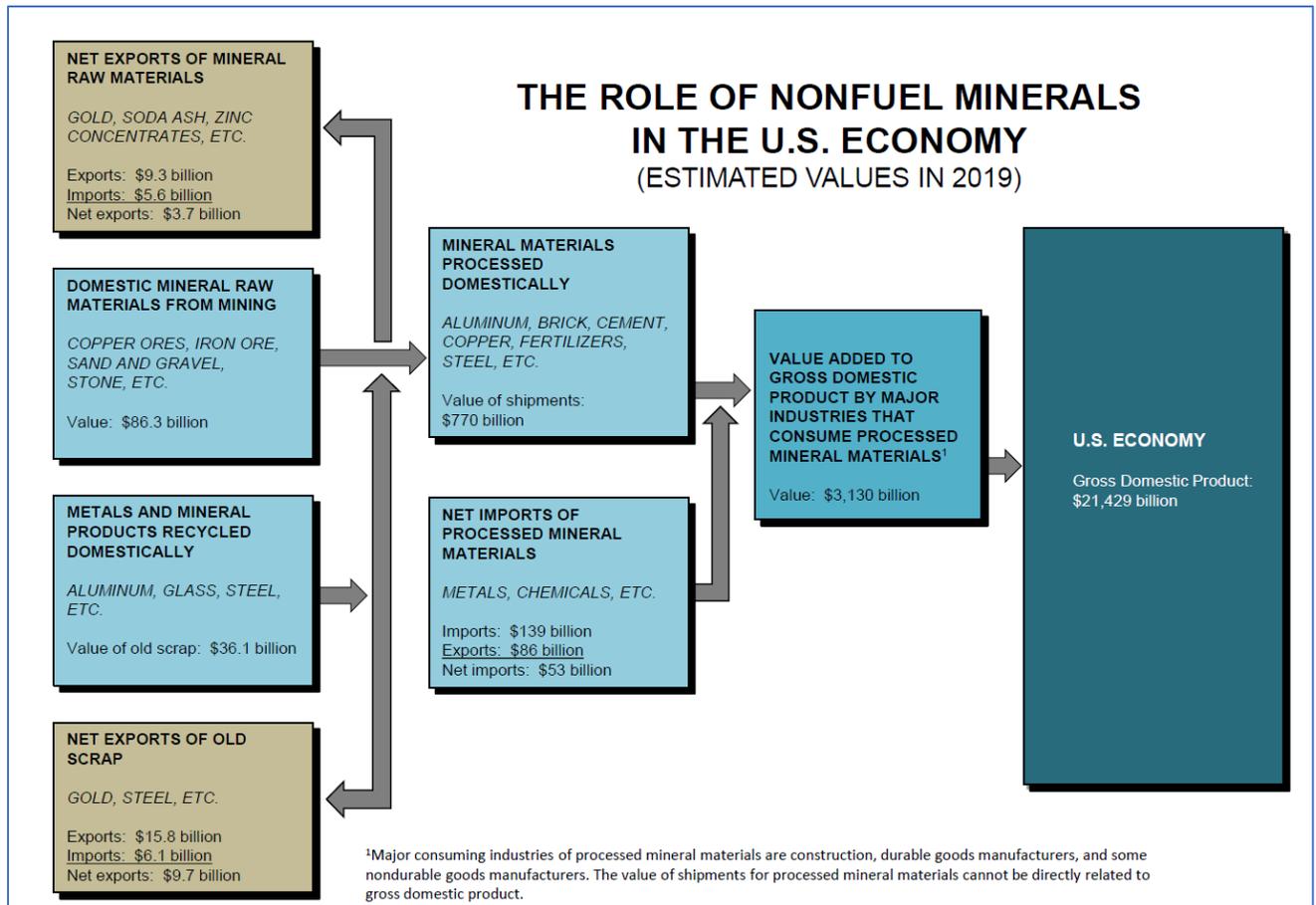
You can see that land mass is finite, that the amount needed for farming is not growing, and what's currently available will need to feed another two billion people over the next few decades.

Solutions to our increased needs will include greater use of fertilizers, improved irrigation, improvements to productivity, eliminating waste and minimizing energy requirements. We believe this will be a fertile (pun intended) investment theme for years to come.

### Mining for Alpha in Minerals and Metals

We will conclude our communique with a brief discussion of the potential for mined minerals and metals. Paramount to the discussion is a belief that the demand for alternative energy resources, electric vehicles, and technology could very well accelerate.

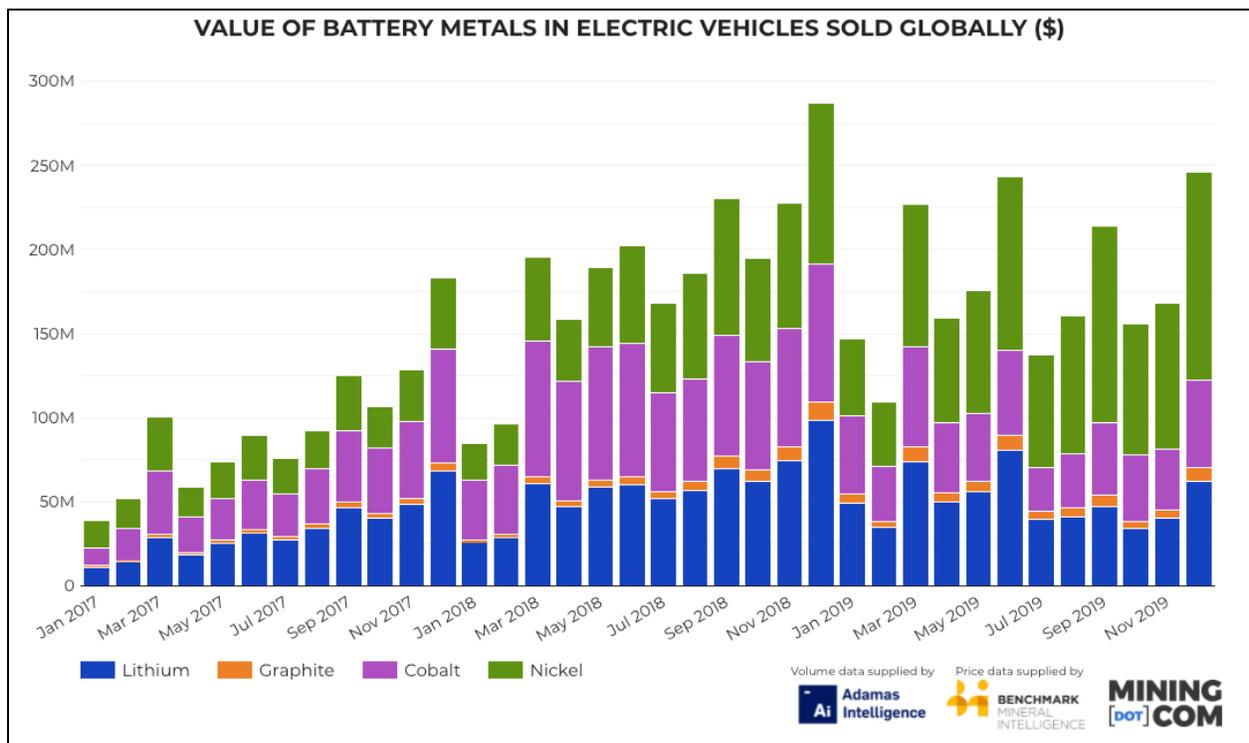
The following flow chart illustrates the role of non-fuel minerals in the US economy in 2019.



Source: US Geological Survey and the US Department of Commerce

The roles are growing. Arsenic, Gallium, and Germanium are commonly used in solar cells. Aluminum and rare earth elements are used in wind turbines. Unfortunately, most if not all these minerals are imported, and in many cases, China is the dominant producer.

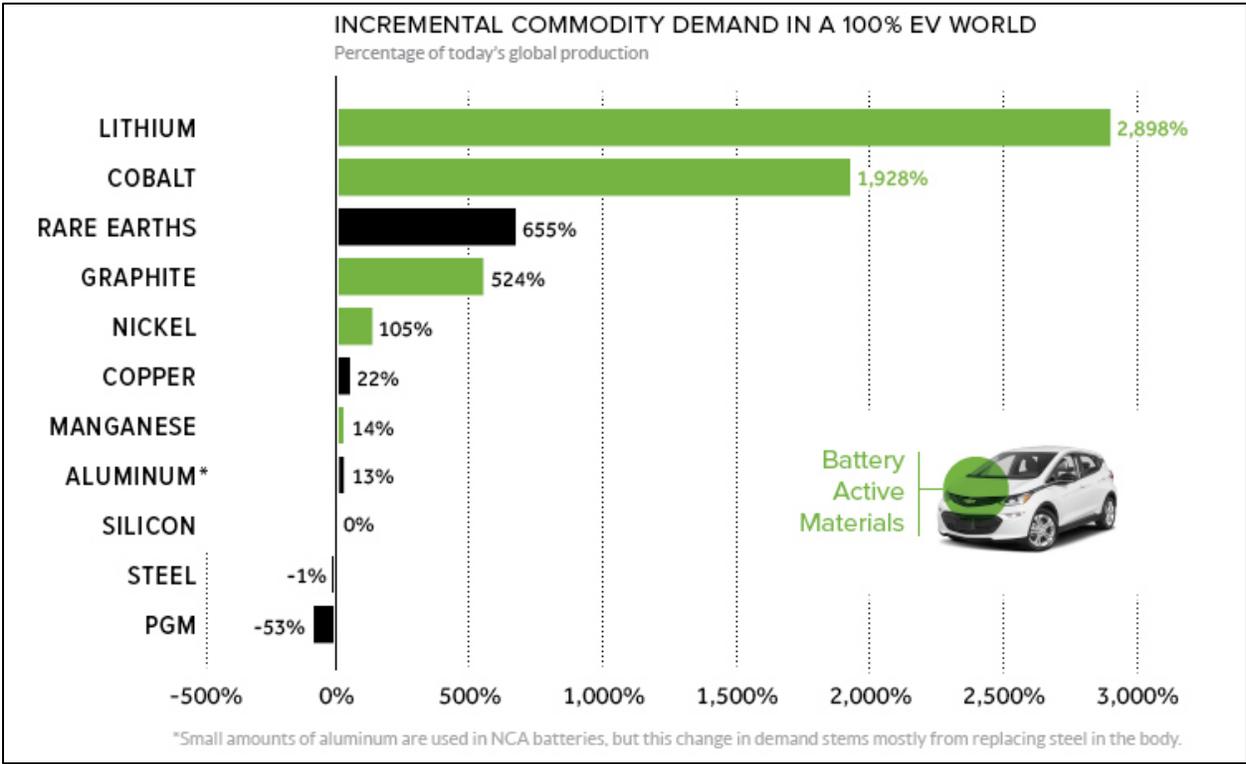
The following chart illustrates the value of battery metals used in electric vehicles worldwide.



Source: mining.com

EV sales represented only 2.5% of world auto sales in 2019 and about 3% in the first half of 2020. As you can surmise, EV growth could be considerable. In 2020 Tesla sold 500,000 vehicles and today the stock price indicates a market cap of \$813 billion or \$1,640,000,000 per vehicle sold. General Motors sold 2.5 million vehicles in 2020 and has a market cap today of \$76 billion or \$30,400 per vehicle sold. Hmm! However, GM, Ford and most of the major car manufacturers are entering the EV space with massive investments and massive plans. Selling cars will always be a competitive business with low margins, while the demand for the ingredients to make the EV operable could continue to be less so.

The following table shows the incremental demand for commodities used in EV production.



Source: [visualcapitalist.com](http://visualcapitalist.com)

Anybody up for producing Lithium?