



<Commodities for a Sustainable Future>

Stephen Burke, CEO
Tommy Siracuse, Research Associate

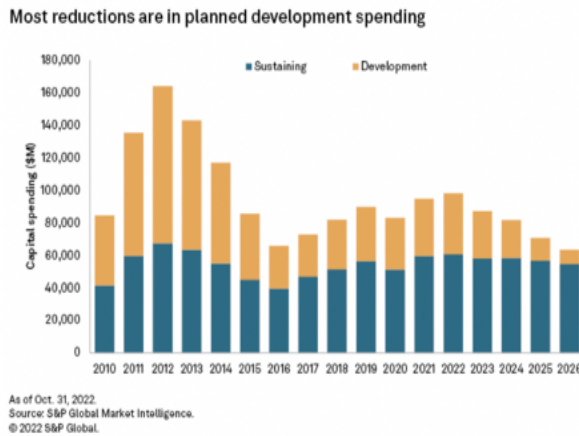
"All sectors of the economy will have to change for the world to decarbonize, upending established markets and creating new ones." McKinsey

A Paradigm Shift for The Commodity Markets

Commodity prices over time are largely driven by supply and demand. Demand is generally a byproduct of global growth and population growth. Supply typically evolves gradually as bringing production online has long lead times often measured in years. But both tend to be somewhat predictable over time. That said there are always exceptions to the norm. Weather, geopolitical events and strikes to name a few. These historic norms are beginning to change as supply and demand get uprooted by several powerful forces. First, the world has and will continue to commit massive amounts of resources towards

decarbonization which requires vast amounts of commodities. Second and equally as important commodities have suffered a near decade of underinvestment in production via capital expenditures. This structural underinvestment will in the near term severely limit climate change objectives and create a deficit for certain commodities. These two forces are going to create a paradigm shift within the commodity markets requiring investors to rethink commodities and their exposures. The energy/climate change revolution has started globally, and parts of the global commodity markets are not prepared for ensuing demands

Chart 1



A Brief Historical Perspective on Commodities

Beginning in the late 1990's commodity prices across all sectors produced historic returns which in term lead to the "ill often "used phrase "the commodity super cycle". The "super cycle" was largely the result of commodity producers unprepared for the demand coming out of the emerging world and specifically out of China. The great urbanization coupled with China becoming the leading global manufacturer resulted in an insatiable appetite for metals, energy and agriculture. The "Great Financial Crisis" (GFC) of 2008/2009 damaged nearly all asset classes commodities included. Commodity prices recovered into 2011 then for most part traded sideways until

mid-2014 and then proceeded to have 5 years of awful returns. Up until the mid-2010s investors had encouraged producers to produce which they did but after years of disappointing returns investors began to exit taking their access to working capital with them. Which has resulted in a massive under investment in production for over a decade. Corporate CEOs responded by focusing on earning, cash flow and buybacks to support their companies stock price at the expense of capital expenditures. This shift from supply focus to corporate prudence will play a meaningful role in commodity prices as the world looks to achieve climate change goals.

The Global Energy Transition Has Begun

For the first time ever in 2022 the capital committed to energy transition equaled that of investments in fossil fuels. In the US Wind and solar power grew 25% and made up approximately one-sixth of US electricity generation. Wood Mackenzie forecasts that capital committed could rise 50% to 100% largely due the Inflation Reduction Act (IRA) in 2023.

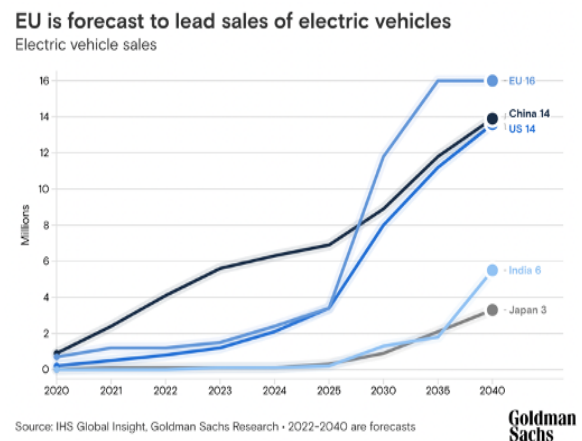
Goldman Sachs forecasts that electric vehicles (EVs) will account for 50% of global sales by 2030. The IRA along with and similar programs in Europe and China will result in trillions of dollars of investment in energy alternatives such as solar, wind, energy storage and EVs in the coming years.

That said these energy alternative solutions require commodities and specifically copper, aluminum and nickel. S&P Global estimates that EVs require 2.5 to 3 times the amount of copper than a combustion engine vehicle does. Solar and offshore wind require 2x and 5x respectively of copper for the same power generation of natural gas and or coal. They project global copper demand to double by 2035.

Aluminum and nickel will also experience unprecedented demand from energy transition and power grid upgrades and expansion. These energy transition forces taking place are about to face the realities of decade underinvestment in production which has been well documented by numerous analysts most notably Jeff Curry at Goldman Sachs. Even though commodities broadly are up over 70% from depressed levels of 2020 capital expenditures have and are expected to

increase by mid-single digit levels in the coming years. According to Wood Mackenzie metals and mining investment spend in 2023 will increase by 3%. Which is often barely enough to keep up with maintenance requirements for existing production.

Chart 2

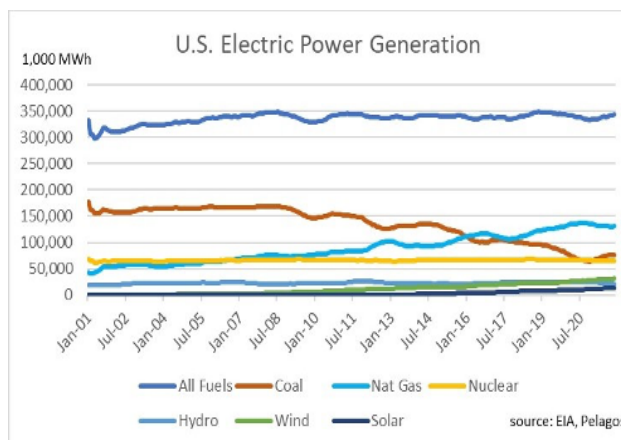


Power and Energy

The power delivered to these batteries is changing too. In the U.S., electricity generation had been mostly from coal even in the most recent decade but now natural gas has overtaken coal as the number one fuel for electricity. Wind and solar are growing faster but from a small base (chart 2). Though natural gas is obviously a fossil fuel, burning it emits roughly half the air pollutants and CO₂ of coal, according to the EIA, making the gas a reasonable transition to fuel until renewables can ramp up further. From a

commodities investment perspective, this provides several opportunities. Even without the invasion of Ukraine, natural gas demand continues to increase. The adoption of wind and solar energy adds to demand for metals and minerals as well as the infrastructure to connect them to the grid. The electricity itself is traded in the markets. Plus, in several regions of the world, emissions trading systems are in place to help determine a market-based cost of carbon. Typically, these cap-and-trade systems set a specified level of emissions and then allow emitters to trade these permits. In addition to these involuntary carbon allowance markets, voluntary carbon credits are increasing quickly as a means to offset carbon emissions.

Chart 3

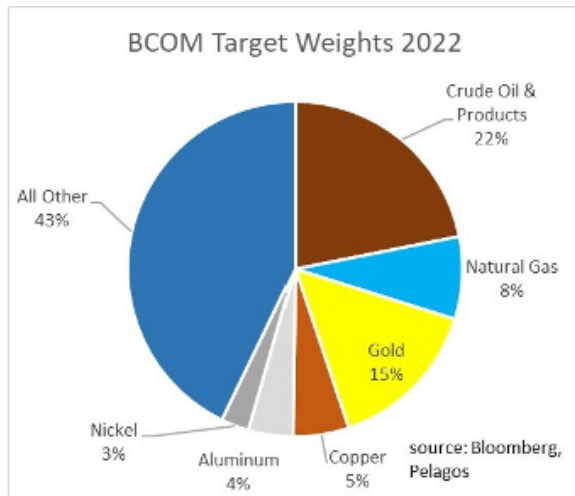


Traditional Commodity Strategies Not Position for Paradigm Shift

Most commodity strategies and funds currently within the market are benchmarked against indices that are formulaic based, largely on production. Gold which will play little if any role in achieving global climate change can make up to 15% of the allocation to some of the most used indices. While crude oil and crude products weights are often 20 % to 25%. At the same time industrial metals critical for energy transition are often 15% of less. Also, carbon allowance which allows companies to achieve their carbon goals and power are not represented at all. Power will play and an ever-important role as EVs and energy alternatives challenge an already stressed power grid that by all accounts is currently stressed and in need of massive upgrades given the current power demands never mind future demands from EVs. Many commodity inclined investors have obtained exposure through traditional indexes such as the S&P GSCI or the Bloomberg Commodity Index (BCOM). These are broad indices with significant weights to crude oil and their products but little

to no weights in commodities tied to new technologies and secular growth. Broad commodities exposure with a lower carbon future is possible.

Chart 4



climate change initiatives backed by trillion of dollars globally, but it has begun and will last for decades. Parts of the commodities market will benefit enormously while others demand will be undermined by the transition. Investors that understand these unfolding changing dynamics within the commodity markets are poised to benefit from the ensuing paradigm shift but it will require solutions that are meaningful different from what is currently available to investors.

Identifying Opportunities as The Commodity Market Paradigm Shifts

Commodities have over the years been viewed as a diversification for a traditional equity/fixed income portfolio and a potential hedge against unexpected inflation. Their decade long poor performance absent the last few years has largely wore out their welcome with investors. As mentioned earlier commodity prices are a by product of balance between supply and demand. We are early in the stages of

1. McKinsey and Company, McKinsey Quarterly August 1, 2022
2. International Energy Agency (IEA), World Energy Outlook Special Report, The Role of Critical Mineral in Clean Energy Transitions. May 2021, Revised March 2022
3. International Energy Agency (IEA), Global Supply Chains of EV Batteries. July 2022
4. World Bank, Minerals for Climate Action: The mineral Intensity of the Clean Energy Transition. 2020 5. McKinsey & Company , Agriculture and Climate Change. April 2020

Pelagos Capital an alternative investments specialist with extensive experience managing multiple alternative investment strategies. Stephen Burkefounded Pelagos in 2005, sold the Company to Franklin Templeton, and reacquired Pelagos Capital from Franklin Templeton. Brad Roche, formerly Executive Director of both UBS Group and Morgan Stanley, joined the team.

Pelagos, Pelagos Capital, and Pelagos Capital Management are registered in the U.S. Patent and Trademark Office. All trademarks and services mentioned herein are their owner's Property. This report or Portions of it may not be reprinted, sold, or redistributed without the written consent of Pelagos Capital.

This article contains the current opinions of the author, but not necessarily those of Pelagos Capital. The author's opinions are subject to change without notice. Pelagos Capital has no obligation to inform you of when opinions or information in this report change. Actual investments or investment decisions made by Pelagos Capital, its own account, or on behalf of clients will not necessarily reflect the views expressed in this report. This article is distributed for informational Purposes only. Forecasts, estimates, and certain information contained herein are based upon Proprietary research and should not be considered as investment advice or a recommendation of any particular security, strategy, or investment product. Information contained herein has been obtained from sources believed to be reliable, but not guaranteed.

FOR INFORMATIONAL PURPOSES ONLY. NOT A SOLICITATION.

