Sabrient Systems
Sector Detector

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The Future of Energy, the Lifeblood of an Economy – Part 1 of 3

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Overview

I am writing this special 3-part series on Energy because: 1) it is the lifeblood of an economy, 2) it is a key component of inflation, 3) AI applications and datacenters are expected to surge global demand for electricity in the face of an already overburdened power grid, and 4) low energy costs benefit all aspects of the economy and raise our GDP growth rate, thus allowing us to more quickly grow our way out of debt rather than having to resort to austerity measures. In summary, it is essential that we have abundant, affordable, reliable, equitable, secure, and clean power generation, and the key energy sources to achieve that are natural gas today and nuclear in the longer term.

I began my professional career with Chevron Corporation, serving as a civil/structural design engineer and environmental compliance engineer for offshore oil & gas production, as well as senior analyst and operations manager in the oil shipping segment. I continue to follow the Energy sector to this day.

Key Points:

1. Global energy consumption, largely driven by hydrocarbons, continues to increase. Access to affordable energy is fundamental to economic health, supporting GDP growth, elevating living standards, reducing poverty, mitigating inflationary pressures, and enabling debt alleviation through economic expansion rather than austerity.
2. Advancements in artificial intelligence, automation, and electrification are anticipated to transform the economy and society primarily through productivity improvements. However, these trends will also contribute to rising global power demand, placing additional strain on already burdened power grids.
3. In the near term, hydrocarbons remain the most reliable and affordable fuel source, with natural gas being the cleanest and most efficient option. This is why global hydrocarbon consumption persists in its upward trajectory despite significant capital investments and government subsidies directed toward wind and solar initiatives.
4. Renewable energy sources promoted by governments—primarily wind and solar—exhibit lower energy density and conversion efficiency, and their intermittent nature necessitates battery storage and backup generation. These challenges can result in unreliability, grid instability, higher costs, suboptimal returns on investment, and continued reliance on government subsidies. Furthermore, as renewables cannot fully replace fossil fuels for reliable baseload power, they introduce redundancy that greatly increases the overall cost and complexity of power generation.
5. Looking ahead, it is improbable that fossil fuel reserves alone will sustain eternal economic growth. Nuclear energy, particularly emerging low-emission low-waste fission technologies using thorium or high-assay low-enriched uranium (HALEU), is poised to play a critical role, including small modular reactors (SMRs). But ultimately, nuclear fusion—having zero greenhouse gas emissions, minimal hazardous waste, and an unlimited fuel source (ocean water)—represents the long-term “holy grail” of sustainable energy production.
6. The growing electrification of the economy is increasing dependence on materials such as rare earth elements (REEs), which are vital components in wind turbines, electric vehicles, and photovoltaic cells. Additionally, superconductive materials like graphene may enhance efficiency and minimize transmission losses. Technology futurist George Gilder predicts that future datacenters could be consolidated into single graphene wafers, potentially eliminating the need for hyperscale cloud infrastructure.
7. Regarding investment opportunities, I identify some of the key industry players, accessible via both individual stocks and exchange-traded funds (ETFs).

In Part 1 of my 3-part commentary below, I discuss the following topics: 1) A brief history of energy, 2) Fossil fuels remain dominant today, and 3) The push for renewables. Then I close as usual with Sabrient’s latest fundamental-based SectorCast quantitative rankings of the ten U.S. business sectors, and current positioning of our sector rotation model.

In Part 2, I will discuss: 1) Green legislation and subsidies encounter roadblocks, 2) Europe hitting a breaking point, and 3) Surging power demand from AI and other new technologies. And then in Part 3, I will discuss: 1) Solving the US grid fragility problem, 2) The future is nuclear, 3) Rare earth elements, 4) Superconductors, and 5) Investment opportunities. So, watch for those next two posts.

By the way, Sabrient's latest ***Q3 2025 Baker's Dozen*** launched on 7/18. ***Small Cap Growth 47*** launched on 7/16 as an alpha-seeking alternative to the Russell 2000 for small cap exposure. And the current ***Dividend 52*** will close out its time in primary market this Thursday 8/7. It is a growth & income strategy with a current yield of 3.31%. Note: The new ***Dividend 53*** will launch on 8/8.

And as always, please email me your thoughts on this article, and feel free to contact me about speaking on any of these topics at your event!

Commentary – Part 1 of 3

"Energy is the enabler of everything that we do. Everything. Energy is not A sector of the economy; it is THE sector that enables every other sector. Energy is life." – Chris Wright, US Secretary of Energy

"Energy is the foundation of an economy that allows everything else to grow and prosper…. All GDP is just a measure of energy being degraded, so the security of GDP depends on secure access to energy." – Andrew Lees, economist at MacroStrategy Partnership UK

"If all economic activity is energy transformed, nothing matters more to our living standards than access to cheap and reliable energy." – Merryn Somerset Webb, Bloomberg

"There's a linear relationship—the more energy that's produced, the higher the GDP per capita.… The critical lynchpin for all those other points of abundance being unleashed is the energy equation." – David Friedberg, entrepreneur, investor, and podcaster

"The history of humanity teaches a simple lesson. Energy abundance sparks economic abundance." – Scott Bessent, US Secretary of the Treasury

"If you compare us to any other country, we produce [fossil fuels] cleaner, safer, smarter, and healthier than anyone else, [so] the more energy that's produced in the United States, the better it is for the globe and the better it is for American prosperity." – Doug Burgum, US Secretary of the Interior

"[Solar and wind subsidies] are a big mistake and political posturing that results in higher costs and less reliable electricity…. We want more reliable, affordable, secure energy." – Chris Wright, US Secretary of Energy

"If we don't have energy security, we're not going to have national security." – Doug Burgum, US Secretary of the Interior

"Total energy use will climb because it always does, but energy used for any given task today will fall by at least an order of magnitude." – George Gilder, famed technology futurist, economist, fund manager, and co-founder of Discovery Institute

A brief history of energy:

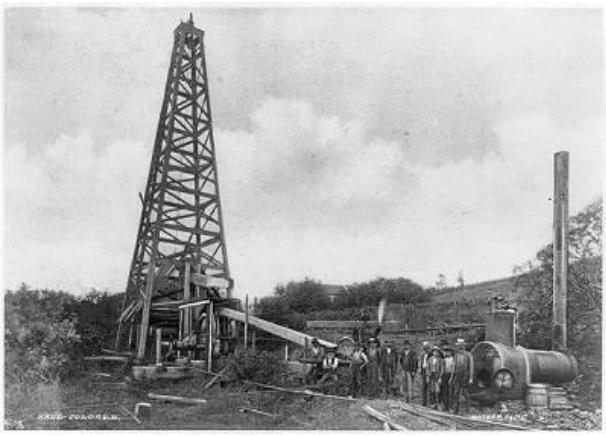
Prior to the 1700's, society relied upon biomass like wood, peat, and animal dung to burn for heat, cooking, artisan crafts (e.g., metalworking), industrial processes (e.g., brewing and food processing). Other sources were wind power and hydropower, using sailing ships, windmills, and waterwheels, each of which harnessed the kinetic energy of wind and water to directly perform mechanical work, as illustrated in the more recent photos below. Most energy use was local and limited by natural availability. The emergence of fossil fuels (coal, crude oil, and natural gas) as the dominant energy sources evolved over the course of successive industrial revolutions, technological innovations, and geopolitical forces, accelerating the transformation of economies and societies along the way.

Coal was the first fossil fuel to see widespread use, catalyzing a global energy revolution. Its widespread adoption began in the 18th century in Britain, where wood shortages led people to turn to coal for heating and metalworking. But the invention of the steam engine transformed coal from a heating source into the backbone of industrialization. In 1769, Scottish engineer/inventor James Watt's improvements to the steam engine allowed coal to be more efficiently used in mechanical work thus expanding its range of applications, including steam-powered factories, locomotives, and ships. This revolutionized transportation and manufacturing.

By the 19th century, coal had become the dominant energy source in Britain and much of Europe, powering steel mills, allowing train travel across continents, and fueling the expansion of urban centers. And with vast coal seams in Appalachia and the Midwest, coal

also ignited rapid economic growth and industrialization here in the US following the Civil War. By the late 1800's, coal had become the principal energy source worldwide due to its abundance, high energy density, and reliability. However, coal mining was extremely hazardous and environmentally destructive, and coal combustion released enormous amounts of smoke and particulates, contributing to urban air pollution and respiratory illness.

While coal fueled the early industrial age, oil fostered the age of mobility and mechanization. An American businessman and inventor named Samuel Kier owned salt wells in Pennsylvania that were becoming fouled with petroleum, which was considered a useless byproduct to be discarded. But when an accumulated oil slick caught fire, he saw a way to profit from it. In 1848, Kier began experimenting by creating distillates of crude oil, leading to products like patent medicine, petroleum jelly, and an economical way to produce kerosene. Then in 1859, American businessman Edwin Drake drilled the first commercially successful oil well in Titusville, Pennsylvania, shown below, innovating the use of cast iron piping to prevent borehole collapse and drill deeper.



At first, this new bounty of crude oil was refined into kerosene for lamps in place of whale oil. But the real breakthrough came with the invention of the internal combustion engine and, subsequently, the automobile, and by the early 20th century, gasoline (initially a byproduct of kerosene refining) became the fuel of choice. In 1908, Henry Ford famously introduced the mass-produced Model T, which made car ownership widely available to the middle class and dramatically increased gasoline demand, leading to thermal cracking (and later, catalytic cracking) to increase the yield of gasoline from the refining process. Thus, oil rapidly surpassed coal as the primary energy source for transportation. World Wars I and II used refined oil to power all military vehicles, including trucks, tanks, naval ships, and aircraft. And the ensuing postwar economic boom led to an explosion in automobile usage, highway construction, and suburban expansion that surged global oil demand—and handed tremendous wealth and economic power to Middle Eastern countries (due to their vast reserves of accessible, high-quality crude oil) as well as Venezuela and the Soviet Union.

As for natural gas, it was long considered a nuisance byproduct of oil drilling, primarily due to a lack of transmission infrastructure, and much of it was flared off directly into the air at drilling sites. But as pipeline networks expanded, it gained prominence in the mid-1900's as a useful, efficient, and much cleaner-burning fuel—first for heating and cooking and later for electricity generation. Advances in gas turbine technology starting in the 1990's and more recent advances in extraction technologies for low-permeability shale formations—particularly hydraulic fracturing ("fracking") and horizontal drilling—led to the shale gas revolution in the US, which unlocked vast new natural gas supplies, lowered prices, and further accelerated its usage. By 2016, natural gas had surpassed coal as the leading source of electricity generation in the US.

Wind and solar energy are among the oldest forms of harnessed natural power, with wind used for sailing and milling as early as 5000 BCE and solar energy employed by ancient civilizations for heating through passive architectural designs, according to historical data from the US Department of Energy and International Renewable Energy Agency (IRENA). Modern wind power began in the late 19th century with the development of mechanical windmills and the first electricity-generating wind turbine in 1887 by James Blyth in Scotland. Similarly, the photovoltaic effect was discovered in 1839 by Edmond Becquerel, but practical solar panels weren't developed until the 1950's, initially for powering satellites. During the 1970's energy crisis, interest in renewable energy surged, but widespread adoption lagged due to high costs and low efficiency. However, improvements in materials and manufacturing in the early 21st century, heavily supported by government subsidies, lowered costs and spurred rapid growth.

Nuclear energy emerged in the early 20th century following discoveries in atomic physics, particularly the realization that immense energy could be released from atomic nuclei. According to the US Department of Energy's Office of Nuclear Energy, in 1938 German scientists discovered nuclear fission in which splitting uranium atoms released large amounts of energy—an insight that prompted the US-led Manhattan Project during World War II to develop an atomic bomb before Nazi Germany did so. After the war, attention shifted to peaceful uses of nuclear technology, leading to the first commercial (albeit small-scale) nuclear power plant in Obninsk, USSR in 1954, and soon after in the US, the Shippingport (Pennsylvania) Atomic Power Station in 1958—which is considered the world's first full-scale atomic power plant devoted exclusively for peacetime electricity generation, according to the Nuclear Regulatory Commission.

Over the ensuing decades, dozens of countries adopted nuclear power for electricity generation due to its high energy density, high conversion efficiency, high power output, zero greenhouse gas emissions during operation, and low overall carbon footprint. However, safety concerns tempered public enthusiasm and policy support after high-profile accidents like Three Mile Island (Pennsylvania) in 1979 (displayed in the photo below), Chernobyl (Ukraine, within the Soviet Union) in 1986, and Fukushima (Japan) in 2011. Nevertheless, modern nuclear technology has evolved to be much safer and with much less hazardous and long-lived waste.

Fossil fuels remain dominant today:

Not so long ago, Energy was the largest sector in the S&P 500, with several names among the world's largest companies. In 1980, the Energy sector represented a third of the S&P 500, and the largest companies in the world were industrial conglomerates or vertically integrated oil companies. In fact, six of the 10 largest companies in the S&P 500 were oil companies (Exxon, Standard Oil of Indiana, Schlumberger, Mobil, Standard Oil of California, Atlantic Richfield).

In 2000, General Electric was by far the biggest company, followed by Exxon Mobil, Pfizer, Citigroup, Cisco Systems, Walmart, Microsoft, AIG, Merck, and Intel. And in 2009, the Energy sector allocation in the S&P 500 was as high as 15% of the S&P 500. Even as recently as 2013, Exxon Mobil was still competing with Apple for the top spot as the largest publicly traded company.

How quickly that has changed. Today, the Energy sector represents just 3% of the S&P 500. And it's not just due to the green energy movement. Rising productivity and efficiency across the economy, industry, transportation, and oil extraction technology have made the US essentially energy independent—but also depressed oil & gas prices as well as company share prices. Back in the day, Exxon Mobil was earning a lot more profit than Apple, but today that dynamic has reversed, with Big Tech boasting huge profit margins, operating leverage, and return on capital. For example, the three largest US Tech companies—Apple, NVIDIA, and Microsoft—average net profit margins of over 40% and ROE of around 90%. Remarkably, each of the five largest Tech stocks (NVIDIA, Microsoft, Apple, Amazon, and Alphabet) *is larger by itself than the aggregate market cap of the entire Energy sector* within the S&P 500 (about $2.2 trillion).

And yet, despite constraints on new development put on the oil industry during the Biden Administration, the US still increased oil production to 13.2 million barrels per day (bpd), which is the highest in the world. And now, the Trump Administration seeks to incentivize production and bring down oil prices through deregulation as part of what US Treasury Secretary Scott Bessent calls a "3-3-3" strategy—targeting 3% GDP growth, 3% deficit/GDP ratio, and an additional 3 million bpd in oil production (with a lower target price of $50/bbl).

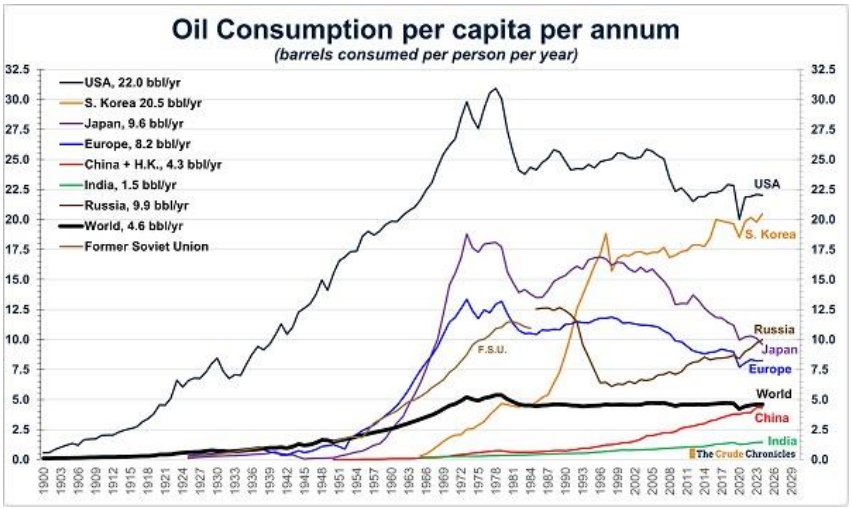
In fact, the OPEC+ group of 22 countries announced that it no longer has the oil production dominance to control pricing, so it plans to boost production by over 500,000 bpd. And positive developments in the US-Iran nuclear standoff would suggest a free flow of Iranian oil, further pressuring global prices. This article discusses how Saudi Arabia is ready to turn up the spigot, with this enlightening passage: *"Saudi Arabian officials are briefing allies and industry experts to say the kingdom is unwilling to prop up the oil market with further supply cuts and can handle a prolonged period of low prices, five sources with knowledge of the talks said. This possible shift in Saudi policy could suggest a move toward producing more and expanding its market share, a major change after five years spent balancing the market through deep output as a leader of the OPEC+ group of oil producers."*

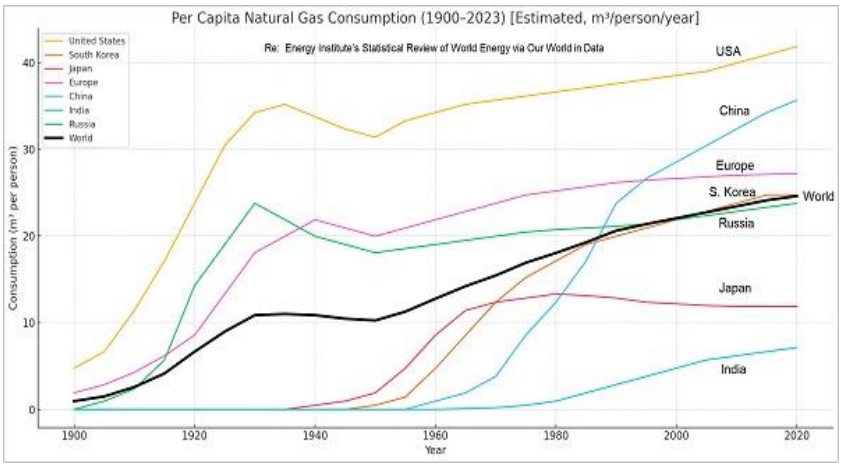
And according to the WSJ, China has poured hundreds of billions of dollars into reducing its massive imports of crude oil—not for climate reasons but for national security (e.g., US sanctions or war)—by increasing domestic production and rapidly building the world's leading electric vehicle industry. Between 2018 and 2024, China boosted oil production by 13% to around 4.3 million barrels a day such that oil imports fell nearly 2% last year. The International Energy Agency forecasts that China's demand for oil will peak by 2027, while gasoline and diesel demand likely has already peaked. However, the country still imports about 11 million bpd (70% of total consumption), and overall oil consumption is expected to decline only gradually as oil demand for petrochemical manufacturing grows.

The 2025 Statistical Review of World Energy was recently released showing that global consumption of oil, natural gas, and coal individually set record highs in 2024 such that hydrocarbons accounted for 86.6% of total energy supply, essentially unchanged from 2023 despite herculean efforts to phase them out in favor of renewables and green alternatives. Relatively clean-burning natural gas now accounts for roughly 25% of worldwide energy consumption, with the US the top producer at 100 billion cubic feet per day (bcf/d) followed by Russia (61 bcf/d) and Iran (25 bcf/d).

The chart on the right from *The Crude Chronicles* on Substack shows the historical trend since 1900 among the major economies around the world in their "oil demand intensity" (i.e., annual consumption per capita). It shows that demand is holding steady globally but continues to increase in Asia.

But the biggest demand growth is in the much cleaner-burning natural gas, which has led a broad resurgence in hydrocarbon demand in Europe for the first time since the turn of the century, as illustrated in the next chart below.





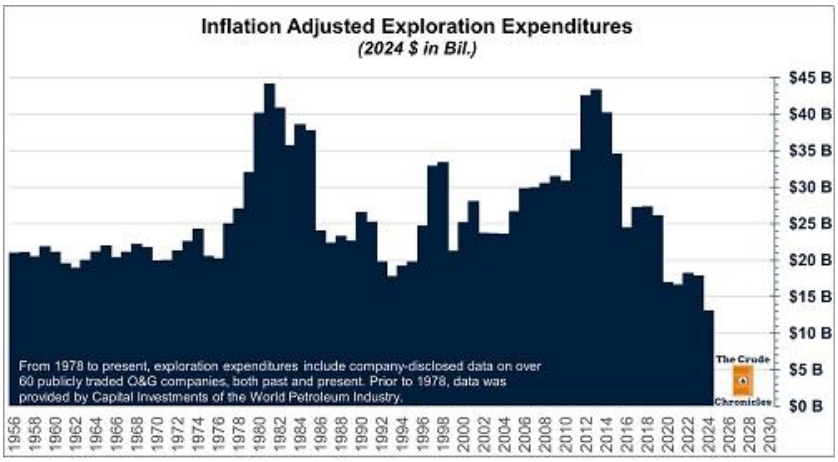
According to energy expert *Doomberg* on Substack, *"Natural gas now accounts for 23% of the world's primary energy consumption, compared to 26% for coal and 31% for oil. A vast network of pipelines crisscrosses most developed nations, while the advent of liquefied natural gas (LNG) technology [which allows it to be transported by oceangoing tanker] has created a truly global market for the fuel. [Despite pessimist warnings to the contrary], the US has both the capacity and the resource base to produce far more natural gas than it does today. If market conditions evolve as we expect, it will almost certainly continue on its current trajectory for decades to come."*

Natural gas is already the largest fuel supply source for electricity in the US, with total domestic natural gas production in 2024 of 41.0 trillion cubic feet (Tcf). The Energy Information Administration (EIA) estimates that natural gas will account for over 40% of total domestic power generation in 2025, and the US has become the world's largest energy producer and largest energy exporter. In fact, in June 2025, the value of US petroleum exports exceeded imports for the 40th consecutive month.

Notably, there is a new shale gas project in the Permian Basin on the New Mexico side of the border and in the Marcellus Basin in Pennsylvania—areas where, *"You literally have gas coming out of your ears,"* according to Maria Jelescu Dreyfus, CEO and founder of Ardinall Investment Management (on a recent episode of the Buy Hold Sell podcast). The primary challenge for Marcellus Shale gas is transportation to the customer, requiring either new gas pipelines or transformation of the gas into electricity on site and then moving it via power lines.

All of this speaks to the trend toward increased fossil fuel production, greater energy independence, and lower energy prices. But according to *The Crude Chronicles*, from a domestic standpoint, oil well productivity is slowing, our Strategic Petroleum Reserve (SPR) has been heavily drawn down (to a 40-year low), inventories of drilled-but-uncompleted (DUC) wells, which can be brought online quickly, are largely gone (i.e., already in production), and OPEC's spare capacity is diminishing (i.e., already in production). Moreover, finding and development costs (F&D), which impact the oil price floor, are rising in the long-running Permian Basin of Texas (America's largest oil field), while lease operating expenses are increasing, and exploration and production (E&P) companies are cutting back on wages and hours.

In addition, industry capital spending has been in a 10-year decline in favor of a focus on profitability and paying shareholders dividends and share buybacks. The chart below from *The Crude Chronicles* shows the history of inflation-adjusted oil and gas exploration spending, which in 2024 hit its lowest point in the post-World War II era.



For example, Chevron is approaching a production plateau in its Permian Basin operations. But rather than pouring more capital into it, the company is cutting back on drill rigs and fracking crews as it nears its long-term target of 1 million barrels of oil equivalent (BOE) per day, which it expects can continue through 2040 as a cash cow, according to Bloomberg, with reduced expenses lifting free cash flow from the Permian Basin to an estimated $5 billion annually by 2027.

So, as the demand for affordable energy grows, prioritizing and incentivizing the production of abundant, low-emissions natural gas seems to be the obvious near-term solution. Ramping up production not only serves to fulfill our domestic power needs but also can be exported to gas-short Europe and Asia as well as South America. This includes liquefied natural gas (LNG), which is mainly methane, associated liquefied petroleum gas (LPG), like butane and propane, and other Natural Gas Liquids (NGLs), like ethane, which is used in making plastics.

The Haynesville Shale formation in east Texas and northwest Louisiana is ideally located for easy access to LNG export facilities and projects clustered on the nearby Gulf Coast, including Chenier Energy (stock ticker: LNG). Indeed, four new LNG facilities were recently approved: Commonwealth LNG, Golden Pass LNG, Delfin LNG, and Venture Global CP2 LNG. According to the EIA, the US was the world's largest LNG exporter in 2024 at 11.9 bcf/d, which was about the same as 2023. But exports should soon soar, which also helps shrink our national trade deficit. Indeed, Tokyo Gas, among other foreign entities in countries that lack domestic oil & gas resources, has bought ownership in Haynesville shale gas.

Cheniere Energy was founded in 1996 to be an oil & gas exploration & production company. It later shifted to regasification of expected LNG *imports* that the US would need in accordance with "Peak Oil" theory—which posited a rapid trend of diminishing hydrocarbon production and depleting reserves in the face of rising global demand, ultimately driving oil prices upwards of $200/bbl (a theory that I admittedly believed in at the time, circa 2000). The company's Sabine Pass LNG facility was placed into service in 2008, again for LNG *imports*, regasification, and distribution through the domestic gas pipeline system.

But as advanced recovery methods (mainly fracking and horizontal drilling) have made more of our domestic reserves economically viable—most notably shale oil and associated gas produced during oil production (which previously may have been flared off)—we have become an energy exporting nation. So, in 2010 the Sabine Pass facility changed direction from import/regasification to liquefaction/export, ultimately becoming operational in 2016. As the US has become the world's largest LNG exporter, this facility (shown in the picture) is now proudly among the largest in the world.

The push for renewables:

Concerns about air pollution, the ozone layer, the enhanced greenhouse effect, and a changing climate from human activities like hydrocarbon combustion and deforestation have bred an anti-fossil fuel activism that has infiltrated government, academia, media, and segments of society. It has fomented calls for a "Great Reset" of civilization—from a collective expectation of economic growth, prosperity, and rising standards of living for all, to one that focuses more on economic equity and environmental sustainability.

At one point several years ago, activists and politicians were emotionally and stridently lamenting that the world would end within 12 years due to Climate Change (nee Global Warming). It was only reversible, they said, if we immediately ended all combustion of hydrocarbons and switched entirely to wind, solar, and hydroelectric. In the words of famed Swedish child activist Greta Thunberg, *"People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you!"*

But many others believe that either the risks are overstated or the global societal costs to reverse it are too great—and regardless, the solution cannot be in *austerity* (e.g., rising energy costs and falling standards of living) but rather in *technology*—to reduce both energy costs and environmental impact while continuing to advance living standards globally in the pursuit of "sustainable abundance."

In a recent speech, engineer, energy entrepreneur, and now US Energy Secretary Chris Wright remarked, *"I've been called a climate denier or climate skeptic. This is simply wrong. I am a climate realist…. [We should] treat climate change for what it is, a global physical phenomenon that is a side effect of building the modern world. [Humans] have indeed raised global atmospheric CO2 concentration by 50% in the process of more than doubling human life expectancy…lifting almost all the world's citizens out of grinding poverty, launching modern medicine, telecommunications, planes, trains and automobiles too. Everything in life involves trade-offs…. Responses to climate change bring their own set of trade-offs…. Climate policies have been impoverishing to our citizens, economically destructive to our businesses and politically polarizing…. The cure was far more destructive than the disease. There are no winners in that world except for politicians and rapidly growing interest groups."*

I saw a guest on CNBC warn that because the One Big Beautiful Bill Act (OBBBA) eliminates subsidies for wind and solar farms, there soon will be a price spike for electricity as AI-driven demand surges—as if the free market can't ensure sufficient power supply with best available energy sources. Of course, without deregulation that eliminates the government's ability to create impediments to the private sector, this might be true. The reality is that government has proven itself to be quite *inept* at efficient capital allocation and ROI, while the free market and private sector have proven to be quite *adept* at it. Government needs to get out of the way.

In the wise words of Miami Mayor Francis Suarez, who has transformed his once failing and bankrupt city into a thriving bastion of capitalism, *"Government is not an efficient purveyor of services…[so] don't get in the way…it's like the Hippocratic Oath, 'First, do no harm."* And in the view of sharp-tongued financial publisher Bill Bonner, *"A [financial] loss means that you've put more resources, capital, energy, and labor into a project than you get out of it. Real wealth is destroyed, not created. And as you destroy wealth, you end up with scarcity, not abundance."*

Bonner has also posited, *"The only honest role for government is to protect people from danger. But it quickly becomes a protection racket. The more fearful people become the more they are willing to pay for protection. So, the natural tendency of government is to find boogeymen everywhere."*

Indeed, in the view of Travis Fisher, Director of Energy and Environmental Policy Studies at the Cato Institute, using the term "existential threat" is a way for politicians to justify any amount of spending and disruption, even though oil is the most valuable energy source today due to its high energy density and ease of transportation. Fisher says, *"Net-zero is anti-human; but zero energy poverty is the most pro-human thing I can think of."*

Fisher refers to the satellite photo below of the Korean Peninsula (with China at the top, North Korea outlined in the middle, and South Korea at the bottom), which reflects the *"darkness and despair"* of oppression and illustrates *"everything you need to know about the relationship between energy and freedom"*—and the innovation and prosperity that freedom breeds.

Indeed, there are glaring practicality issues with this plan for a Great Reset that favors renewables, including affordability, reliability, safety, supply chain risk, and the integration complexities of battery storage with existing infrastructure, not to mention the alternative forms of environmental degradation that these technologies wreak. The unresolved reality is that windmills only create power when the wind blows and solar farms only create power when the Sun shines, which betrays its intermittency.

Nevertheless, former Energy Secretary in the Biden Administration Jennifer Granholm lectured us in 2022 that, *"We need to align electricity use with when clean energy is available…it's about smarter consumption to support our climate goals."* In other words, households and businesses should adjust their energy use to better match when the wind is blowing or the Sun is shining! And then they managed to pass the misnomered Inflation Reduction Act (IRA) that heavily subsidized wind and solar projects and hastened the retirement of 104,000 megawatts (MW) of reliable coal and natural gas power plant capacity by 2030, according to a recent Wall Street Journal editorial board op-ed.

Coming up next time:

In Part 2 of this 3-part series on the Future of Energy, I will discuss: 1) Green legislation and subsidies encounter roadblocks, 2) Europe hitting a breaking point, and 3) Surging power demand from AI and other new technologies.

And then in Part 3, I will discuss: 1) Solving the US grid fragility problem, 2) The future is nuclear, 3) Rare earth elements, 4) Superconductors, and 5) Investment opportunities.

Latest Sector Rankings

Relative sector rankings are based on Sabrient's proprietary SectorCast model, which builds a composite profile of each of over 1,400 equity ETFs based on bottom-up aggregate scoring of the constituent stocks. The *Outlook Score* is a Growth at a Reasonable Price (GARP) model that employs a forward-looking, fundamentals-based multifactor algorithm considering forward valuation, historical and projected earnings growth, net revisions to Wall Street analysts' consensus earnings estimates, quality and sustainability of reported earnings, and various return ratios. It helps us predict relative performance over the next 3-6 months.

In addition, SectorCast computes a *Bull Score* and *Bear Score* for each ETF based on recent price behavior of the constituent stocks on particularly strong and weak market days. A high Bull score indicates that stocks held by the ETF recently have tended toward relative outperformance when the market is strong, while a high Bear score indicates that stocks within the ETF have tended to hold up relatively well (i.e., safe havens) when the market is weak. Outlook score is forward-looking while Bull and Bear are backward-looking.

As a group, these three scores can be helpful for positioning a portfolio for a given set of anticipated market conditions. Of course, each ETF holds a unique portfolio of stocks and position weights, so the sectors represented will score differently depending upon which set of ETFs is used. We use the iShares that represent the ten major U.S. business sectors: Financials (IYF), Technology (IYW), Industrials (IYJ), Healthcare (IYH), Consumer Staples (IYK), Consumer Discretionary (IYC), Energy (IYE), Basic Materials (IYM), Telecommunications (IYZ), and Utilities (IDU). Whereas the Select Sector SPDRs only contain stocks from the S&P 500 large cap index, I prefer the iShares for their larger universe and broader diversity.

The table shows the latest fundamentals-based Outlook rankings and our full sector rotation model:

The rankings display a neutral bias this month given that: 1) cyclicals and secular growth sectors are mixed throughout the rankings, and 2) the scores for every sector besides Technology are below 50. Strongly bullish rankings would entail cyclical and economically sensitive sectors dominating the top half of the rankings with scores above 50 and defensive sectors in the lower half.

Sabrient SectorCast Sector Rotation Strategy - As of 8/4/2025
Suggested Top 3 Sector ETFs for Bullish, Neutral, or Defensive Outlooks
Bullish/Neutral/Defensive bias based on SPY vs. 50/200 day moving averages; 30-90-day forward look

Sector	ETF	Outlook Score	Bull Score	Bear Score	Net Score: Neutral Bias	Net Score: Bullish Bias	Net Score: Defensive Bias
TECHNOLOGY	IYW	98	53	49	98	90.0	59.4
HEALTHCARE	IYH	49	44	52	49	48.6	51.2
TELECOMMUNICATIONS	IYZ	47	50	57	47	65.0	71.9
INDUSTRIALS	IYJ	46	52	52	46	70.3	50.0
BASIC MATERIALS	IYM	45	44	54	45	47.3	58.1
FINANCIALS	IYF	40	52	52	40	68.4	47.4
CONSUMER STAPLES	IYK	39	37	62	39	25.6	90.0
CONSUMER DISCRETIONARY	IYC	37	49	51	37	58.9	41.8
ENERGY	IYE	23	42	62	23	34.6	83.1
UTILITIES	IDU	20	40	63	20	27.9	86.1

Sabrient's ***Outlook Score*** employs a forward-looking fundamentals-based scoring algorithm to create a composite profile of the constituent stocks. ***Bull Score*** and ***Bear Score*** are based on price behavior of the underlying stocks on particularly strong and weak days over the prior 40 market days. High Bull indicates a tendency for relative strength in a strong market, and high Bear indicates a tendency for relative strength in a weak market (i.e., safe havens). High for all scores is 100, and higher is better.

Technology (dominated by the mega-cap Big Tech titans and AI-driven highflyers) remains at the top with a robust Outlook score of a near-perfect 98, despite having by far the highest forward P/E—a lofty 28.4x (although lower than the 31x it hit last month). However, because of its rising EPS growth estimate of 18.4%, the forward PEG (ratio of P/E to EPS growth) of 1.55 remains relatively modest. Tech also displays by far the highest return ratios, favorable insider sentiment (open market buying), as well as solidly positive analyst revisions to earnings estimates (second only to Financials).

Because many Tech stocks are riding secular growth trends (i.e., little cyclicality), no other sector comes close to the consistent sales growth, margins, operating leverage, and return on capital. And Tech not only benefits from its own product development and productivity gains, but those products help other companies with their product development, product delivery, and productivity—so Tech benefits by helping all sectors grow and prosper.

Rounding out the top 5 are Healthcare, Telecom, Industrials, and Basic Materials (which continues to rise from the ashes like a phoenix, alongside commodity prices). At the bottom of the rankings remain Energy and Utilities. Because of the capital spending going into building out the power grid and infrastructure, Utilities and Industrials have been the best performing sectors this year. However, the Utilities sector as a whole suffers from relatively high valuations for only modest projected earnings growth over the next 12 months (8.2%). But this should change as datacenters get built and power demand ramps up. Although US electricity consumption has been increasing only gradually over the past few years, ICF International forecasts a 25% increase in by 2030 and 78% by 2050, driven largely by AI-related initiatives.

Keep in mind, the Outlook Rank does not include timing, momentum, or relative strength factors, but rather reflects the consensus fundamental expectations at a given point in time for individual stocks, aggregated by sector.

Notably, our ETF rankings continue to display much stronger Outlook scores for the cap-weight indexes, like SPY (52) and QQQ (77), over the equal-weight indexes, like RSP (34) and QQQE (53), which reflects the higher quality of the mega cap companies that dominate the cap-weight indexes. You can learn more about gaining access to Sabrient's ETF Scorecards, which rank roughly 1500 ETFs, by visiting: http://highperformancestockportfolios.com

Sector Rotation Model

Our rules-based Sector Rotation model, which appropriately weights Outlook, Bull, and Bear scores in accordance with the overall market's prevailing trend (bullish, neutral, or defensive), returned to a bullish bias in May when the SPY closed solidly above its 200-day moving average several days after previously eclipsing its 50-day. *(Note: In this model, we consider the bias to be bullish from a rules-based trend-following standpoint when SPY is above both its 50-day and 200-day simple moving averages, but neutral if it is between those SMAs while searching for direction, and defensive if below both SMAs.)* The SPY had suffered a dreaded "death cross" during the April selloff when the 50-day average crossed down through the 200-day, but it recovered in late-June when the 50 crossing back above the 200.

As highlighted in the table above, the Sector Rotation model suggests holding **Technology (IYW), Industrials (IYJ), and Financials (IYF).** However, if you prefer a neutral stance, it suggests holding Technology, Healthcare (IYH), and Telecom (IYZ). Or, if you prefer to take a defensive stance due to overbought technicals and lofty valuations, it suggests holding Consumer Staples (IYK), Utilities (IDU), and Energy (IYE).

Disclosure: *At the time of this writing, of the securities mentioned, the author held a position in LNG.*