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State of the Oil & Gas Industry

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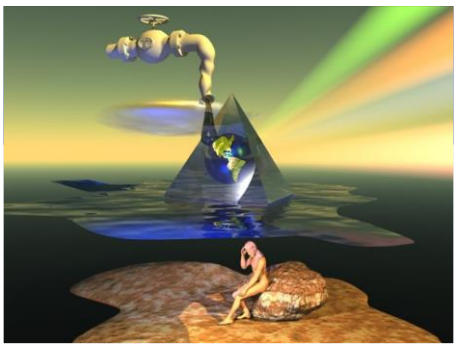
While the U.S. and Kansas economies continue to recover, significant concerns exist including high inflation, U.S. monetary policy, volatility in energy markets, U.S. trade and foreign policies, and more. Most destructive for the economy has been the historic federal spending spree. Over the last two years, the federal government has added $4.8 trillion in new spending which the Federal Reserve said is the main inflation contributor.

The cost to heat a home, drive to work, and run a business have increased exponentially over the last three years. In three short years, we have gone from American energy dominance to American energy despair. The American people are suffering and they expect a new course in 2024.

U.S. oil production reached a record high in 2023. Given the fact that the Biden Administration has been doing everything they can to stifle American oil and natural gas production, some may be puzzled by this production surge. There is a simple explanation. The price of oil and technological innovations are much more significant than the president's policies.

The Kansas Independent Oil & Gas Association (KIOGA) represents thousands of independent oil and natural gas explorers and producers, as well as the service and supply industries that are significantly affected by crude oil prices. Small independent producers account for 92% of the oil and natural gas produced in Kansas. The oil and natural gas industry is an important part of the livelihoods of Kansans throughout the state. Nationally, independent producers drill about 90% of American oil and natural gas wells; produce about 54% of American oil, and more than 85% of American natural gas. With nearly 3,000 members, KIOGA is the lead state and national advocate for the Kansas oil and natural gas industry.

Global Crude Oil Supply/Demand Dynamics



Global oil prices recovered significantly from the extremely depressed levels in 2020 as the world reopened after the pandemic. The dollar also strengthened as inflation rose, forcing the Federal Reserve to raise interest rates rapidly. Subsequently, oil prices declined at the end of 2022, despite a weakening dollar. This was mostly due to the fact that oil was impacted by negative demand factors including China lockdowns, continued Strategic Petroleum Reserve (SPR) sales from the U.S., and rising interest rates.

Oil prices declined slightly in 2023 when a strong U.S. dollar and the Federal Reserve holding interest rates higher fueled concerns that demand would be held back. High interest rates slow economic growth, which curbs oil demand.

But oil supply remained tight as Russia and Saudi Arabia extended production cuts into 2024. Here in the U.S., several major oil producers have said they have zero plans to reverse production plans in response to higher prices. Oil supply is expected to underwhelm demand in the foreseeable future.

The energy outlook for 2023/2024 remains subject to heightened levels of uncertainty. After a tumultuous 2020 when Kansas crude oil prices averaged $29.79/bbl., crude oil prices began a slow recovery as the economy began to recover and demand began to return. Kansas crude oil prices averaged $57.77 in 2021, $84.63 in 2022, and $67.85 in 2023.

Global oil supply growth has been limited in 2023 because of voluntary production cuts from Saudi Arabia. The Energy Information Administration (EIA) expects OPEC+ crude oil production will continue to fall in 2024 as some extension of voluntary cuts from Saudi Arabia are expected to continue into 2024 to keep global oil production lower than global oil demand. The EIA projects Kansas crude oil prices will average $78 per barrel in 2024.

Long-Term Oil Forecasts – The prevailing view that the energy transition is a linear trajectory from oil and other fossil fuels to renewables is misleading and potentially dangerous to a world that will continue to be thirsty for all energy sources.

To place expected future energy demand in some context, the OPEC's 2023 World Energy Outlook sees oil consumption climbing 16% over the next two decades annually adding on average 6 million barrels of oil equivalent a day (mmboe/d) in the period to 2045. This requires huge investments.

Moreover, the oil industry will need to add 5 million barrels of oil a day (mb/d) every year to just maintain current production at around 100 mb/d, given an average annual industry decline rate of around 5%.

The overall investment number for the oil sector is $12.1 trillion out to 2045. However, chronic underinvestment into the global oil industry in recent years, due to industry downturns, the COVID-19 pandemic, as well as flawed policies centered on ending financing in fossil fuel projects, is a major cause of concern.

From 2021 to 2045 total world energy demand is expected to increase from 286 mboe/d to 351 mboe/d, up 65 mboe/d or 23%. Population and energy demand grow together as has always been the case.

The driver of global energy demand is non-OECD (Organization for Economic Cooperation and Development) nations, increasing by almost 69 mboe/d. India alone accounts for 28% of this rise. OECD energy consumption will decline by 3.6 mboe/d over the period.

The biggest factor is population growth. From 2021 to 2045 the world will gain 1.6 billion people, growing from 7.9 billion to 9.5 billion.

Rising populations drive economic growth. More people will need more fuel. Oil's share of total energy will only decline from 30.9% to 28.6%. Coal will fall further, from 26.1% to 16.6%. Natural gas will rise, as will nuclear, hydro, and biomass. The biggest growth area will be renewables, which will grow from 2.6% in 2021 in 11.7% in 2045.

If you're in the oil business today, you will still be in 2045 – governments permitting. OPEC's required "liquids supply" will rise from 95.2 mboe/d in 2021 to 109.8 mboe/d in 2045, a gain of 14.6 mboe/d. This explains the large investment requirements as reported above. OECD's share of oil and liquids production will rise by only 0.3 mboe/d, non-OECD by 2.8 mboe/d. OPEC and the U.S. will supply the rest by increasing output by 10.7 mboe/d.

The International Energy Agency (IEA) also makes energy projections. However, the IEA is a politicized group funded by OECD countries and does what it is told by its political masters. The IEA intertwines energy and climate change, and how the former must be manipulated to impact the latter. IEA's energy forecasts are based on "aspirational" public policy announcements of the governments of the countries that fund it. OPEC's forecasts are based on demographics, economics, and long-range supply/demand forecasts. The IEA changes its forecasts when its sponsoring countries changes their positions.

Despite the aspirational policies attempting to define a transition away from fossil fuels, actions speak louder than words. Countries are showing every day that they are more interested in affordable energy than in paying a green premium. That's proving particularly true in light of the energy-price crisis, whether considering China's interest in buying Russian oil, or climate warrior Germany's decision to hold onto coal.

Believe what you see, and what is actually happening in the marketplace, not what you hear. Germany and California show that alternative energy is really just supplemental energy.

Natural Gas – Natural gas is one of the preferred sources of energy in this country not only for electricity and factories but also as a heating source for people's homes. Over 50% of U.S. homes are heated by natural gas and those that use electric heat pay for natural gas price increases through the backdoor as 38% of U.S. natural gas consumption goes into providing electricity.

Increased onshore natural gas production was a historic game-changer as we went from a country that couldn't produce enough to meet our own needs to the biggest producer in the world. Increased production of natural gas also dramatically lowered our greenhouse gas emissions.

The EIA forecast U.S. natural gas exports will reach an annual record in 2023 and will continue to grow in 2024. The EIA reports that U.S. natural gas storage at the end of 2023 was 6% more than the five-year average. U.S. natural gas inventories are the most entering the 2023/2024 winter heating season since 2020 and the fourth-most in the past 10 years.

Crude Oil Market Structure

The crude oil market is a global oligopolistic market mostly influenced by the OPEC cartel. The OPEC+ cartel is made up of 20+ oil producing nations. The OPEC cartel control about 40% of the world's oil supplies and collude to control global crude oil prices. The U.S. is the largest oil producing nation in the world. Kansas oil and gas producers are perfect competitors in an oligopolistic market. That is to say, we are price takers, not price makers.

Kansas oil and gas producers have no control of crude oil prices but can only manage their internal costs. For Kansas oil and gas producers, optimizing internal operating efficiencies is paramount in order to hedge against volatile crude oil price swings.

Low-cost oil producers across the U.S. establish a fair price for oil based on how low they can get production costs. Kansas oil and gas production will likely remain a conventional, small business operation that will be tweaked with technology. The bottom-line is the low-cost producer will stay in business.

Kansas Oil & Gas Summary

After many decades of productive stewardship, oil and natural gas resources continue to play an important part of the livelihoods of Kansans. In 2022, the Kansas oil and gas industry generated nearly $3.6 billion in output, put tens of thousands of people across Kansas to work, and pumped hundreds of millions of dollars into the state's economy. The industry supports 100,000 jobs, $3 billion in family income, and $1.4 billion in state/local tax revenue. The industry is an important element of the of the Kansas economy today and will be a critical part of the economy going forward.

Economic Impact – Fallout from COVID-19 and concurrent crude oil supply shock in 2020-2021 slowed Kansas oil and gas activity dramatically. Nearly 5,000 wells were shut-down in Kansas in 2020. In 2020, Kansas experienced over $810 million in lost oil output.

Kansas producers worked in 2022-2023 to optimize supply chain relationships, improve operational efficiencies, and refocus capex on the most resilient short-cycle projects.

As market conditions improved in 2022, oil and gas exploration/production activity increased throughout the year. As a result, Kansas crude oil production increased by 0.7% and natural gas production increased by 2% in 2022. Kansas oil production appears to be staying flat in 2023 while natural gas production continues to fall.

The Kansas oil and gas industry produced over 28 million barrels of oil and over 143 billion cubic feet of natural gas in 2023. Nearly 84% of the value of the Kansas oil and natural gas industry comes from oil production and 16% comes from natural gas production. The industry saw 33-49 drilling rigs running each month during 2023. The KCC reports over 1,330 drilling permits were issued in 2023. While the average oil well in Kansas produces 2 BOPD and the average natural gas well produces 23 Mcf per day, the industry supports more than 100,000 jobs, $3 billion in family income, and pay $1.4 billion and state and local taxes.

Oil production in Kansas during calendar year (CY) 2020 was about 29.1 million barrels (79,630 bbls/day). In CY 2021 Kansas oil production was 27.8 million barrels (76,186 bbls/day). In CY 2022 Kansas oil production was about 28 million barrels (76,718 bbls/day) – up about 0.7% from CY 2021. In CY 2023 Kansas oil production was about 27.9 million barrels (76,541 bbls/day). However, it will be some time before we get back to the 90,000 - 100,000 barrels per day level we saw before the pandemic.

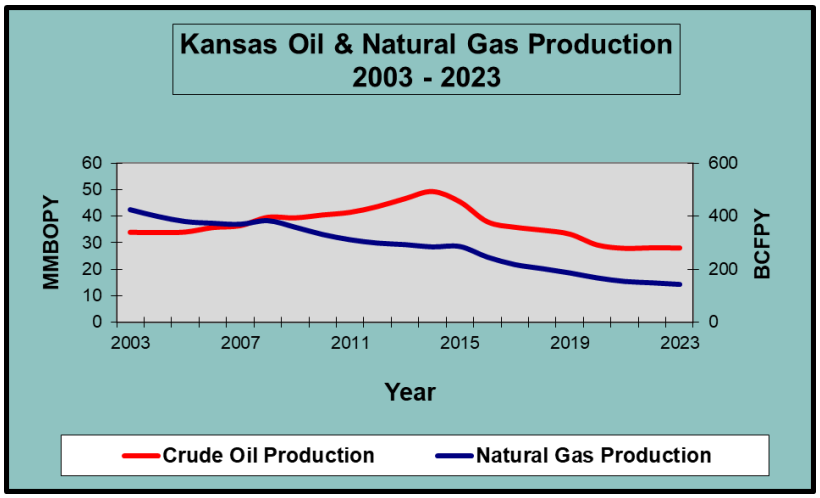


Figure 1

Figure 1 illustrates the trend in Kansas oil and natural gas production over the last 20 years.

The strong U.S. dollar, China lockdowns, continued releases from the *Strategic Petroleum Reserve*, and high interest rates in 2023 curbed oil demand and kept oil prices lower than 2022. As a result, oil and gas tax collections to the State of Kansas and Kansas counties decreased in CY 2023.

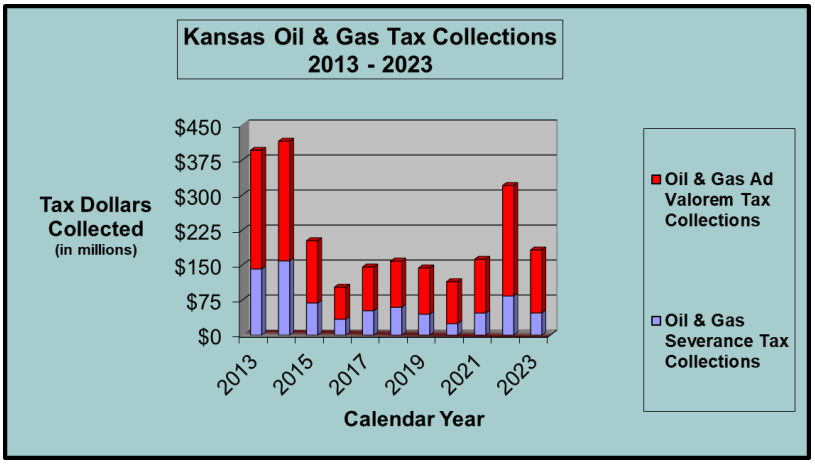


Figure 2

Figure 2 illustrates oil/gas severance and property tax collections trends.

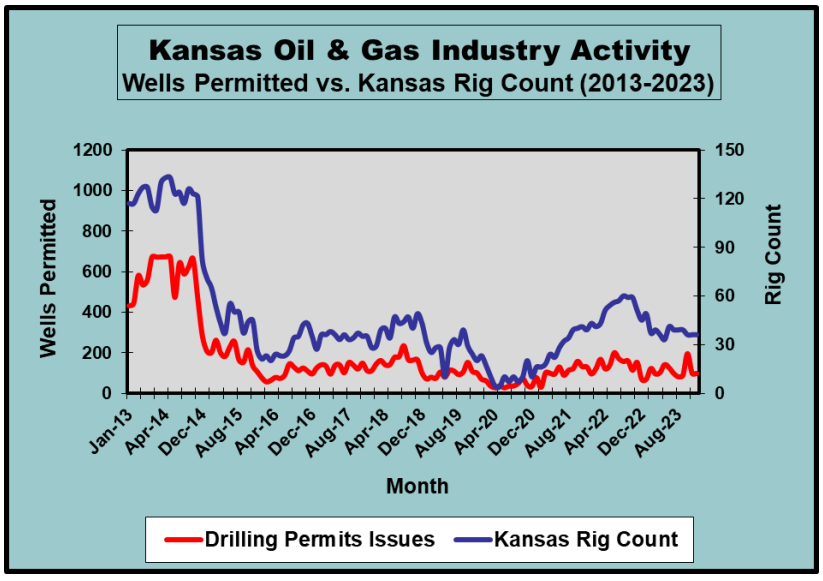


Figure 3

Figure 3 illustrates oil and gas activity in Kansas from 2014-2023.

What are Kansas oil & gas companies doing?

The Kansas oil and gas industry displayed a lot of discipline in 2023 after learning some tough lessons from experiences with market volatilities/disruptions in the past - from the mid-1980s and late 1990s to the more recent 2014-2016 and 2020-2021 downturns.

Many Kansas companies are refocusing capex to strategize their way out of the current downturn. Companies are working to optimize operating cost structures to achieve more efficiency gains and became more specialized regarding their core producing assets. Kansas producers are focusing on the most resilient short-cycle projects and concentrating on their core competencies and smaller producer advantages. Many oil and gas producers across Kansas are working to optimize supply chain relationships, improve operational efficiencies, reduce and refocus capex, and examine acquisition and divestiture opportunities. Operators are high-grading and drilling only the best prospects. In many cases, improved productivity is less about improved technology and more about better application of existing technology.

Expenditures for exploration and development constitute most of a company's upstream capital investment. When calculated on a reserve addition per barrel basis, these expenditures represent the cost of finding and developing a barrel of oil.

Efficiency gains achieved by Kansas oil and gas producers over the years have proven to be very important for reducing break-even prices. Kansas operators in general adhere to cash flow neutrality.

The Kansas oil and gas industry has learned many things through the years. We know that patience, persistence, insight, and innovation payoff. We move forward together in 2024 to focus on value reconstruction and prepare for brighter days ahead.

Key Challenges & Opportunities

The oil and gas industry continues to address many challenges including electric rates, energy policy, carbon tax, emissions, ESG, prices, and more.

Electric Rates - We need to find solutions to high Kansas electric rates - which hurt not just the oil industry, but general economic development as well.

Kansas rates are the highest in our region. Kansas consumers spent more than $775 million more on electricity than just 10 years ago.

With electric costs that are 30-50% of expenses, oil wells in rural Kansas could run for many years longer with more competitive electricity prices. Who will be left to absorb the high fixed costs that burden rates?

KIOGA encourages the Legislature to consider the following recommendations for Kansas electric Cooperatives.

1. Develop a Marginal Electric Load Rider or other economic development riders.
2. Develop and implement more electric load control riders.
3. Define oil/gas well electric load its own category or an industrial customer.
4. All types of rate increases should be reviewed by KCC, including fees.
5. Consolidate territories.

KIOGA also encourages the Legislature to consider some general recommendations including:

1. No central planning committee that picks winners and losers.
2. Establish fair taxation and establishment of the clean-up fund for wind and solar assets.
3. Limit increases for electric rates for consumers. Needs to include cooperative customers as well and include fees and adjustments.
4. Report on Kansas competitiveness regularly.

Other Considerations include:

1. The current system of appointing KCC officials is preferred.
2. Should the KCC have authority over transmission lines in Kansas?
3. Should the KCC or attorney general have approval rights before electric generating assets in the states that are retired?
4. Should the KCC be given approval for official policy regarding SPP issues?

Labor Market - Labor is a critical issue for the Kansas oil and gas industry. Many companies embraced new technologies and automation to manage complex systems and data analytics (do work better, cheaper, and with less people). These changes made companies more efficient, but it also transformed labor needs in the O&G industry. The process was disruptive for workers (those who lose work due to automation are seldom the same folks in newly created jobs.)

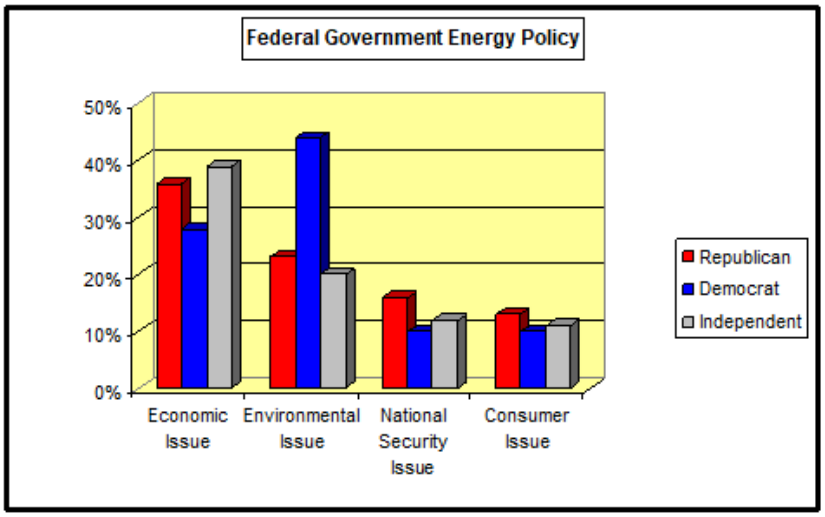
Energy Policy – One area where Republicans and Democrats are expected to work to find a compromise is in the area of energy policy. During times of economic recession and recovery, the public's priorities revolve around improving the economy. This extends to energy legislation. According to several recent public opinion reports, the public supports moving to renewable energy, but is concerned about the impact to the lives and finances of the American consumer. The U.S. public wants Congress to provide energy legislation that will help bolster the economy, protect the environment, and require very minimal personal sacrifice by the consumer.

There is also large support from both Republicans and Democrats to continue the development of alternative fuels in order to become less dependent on fossil fuel sources. However, while the end goal is the same, the approach to the transition to renewable fuel sources differs. The difference is the time frame in which renewable fuels can meet the demand and replace the economic benefits fossil fuel sources currently provide.

While not all segments of the population are ready for a transition to renewable fuels to begin, it is clearly an expectation for the future. We can expect the 118th Congress to propose energy initiatives that not only promote renewable energy but protect the economic benefits currently provided by fossil fuel industries.

The public primarily sees energy policy as an economic issue or environmental issue. Republicans primarily view energy policy as an economic issue. Democrats are far more likely to view energy policy as an environmental issue. Not surprisingly, those who are more environmentally conscious also view energy policy as an environmental issue. Also, individuals with an annual household income of over $100,000, women, and college graduates are more likely to associate energy policy as an environmental issue.

The energy policy challenge for the 118th Congress will be to mediate these two opposing viewpoints to create policy that is beneficial to the economy and the environment.



The federal government has a variety of issues to address, and for some energy policy is not a top priority in comparison to inflation, healthcare, reducing the deficit, improving education, and ensuring national security. However, for many, energy policy is a top priority issue that needs to be addressed.

The public is divided as to whether U.S. energy policy is an economic or environmental issue. Essentially, the public wants a strong economy while improving environmental standards. We can expect Congress to try to achieve this outcome.

Public opinion on a couple of key issues affecting the small independent oil and gas producer is intriguing. There is moderate support for eliminating the tax provisions critical for the small independent oil and natural gas producer (percentage depletion, intangible drilling costs, etc.). Republicans have traditionally been the base of support for fossil fuel industries such as oil, natural gas, and coal, while Democrats are more likely to support eliminating these tax provisions. There appears to be a strong element of opposition in the Republican Party to eliminating these tax provisions.

The general public is supportive of policy initiatives that expand renewable energy sources, but they are not as supportive of penalizing the oil and natural gas industry. Less than half of the general public supports a tax on carbon emissions. While Democrats are largely supportive of taxing carbon emissions, Republicans are likely to oppose such initiatives. The public seems far more supportive of incentivizing companies to pursue renewable fuel sources rather than penalizing industries.

Many folks across the nation are not financially secure enough to deal with rising energy costs and unwilling to make significant changes to their lifestyle. Republicans and Democrats will need to work together to improve energy policy. This will be difficult due to the competing interests of industries and environmental organizations. Environmental organizations want policy that utilizes the highest environmental standards and industry wants policy that has minimal impact to the economy. If energy legislation does not serve the best interest of the public, it offers no incentive for the public to make significant changes in their lifestyle.

Is energy policy that creates a compromise of all interested parties and public expectations better than no energy policy at all? That is a question the 118th Congress may have to answer. One thing is certain. The public places high priority on energy policy and will continue to be dissatisfied with the direction of energy policy unless progress is made.

Just a few years ago, no one would have imagined the U.S. could increase production of oil and natural gas while cutting greenhouse gas emissions, which are now near 25-year lows. The oil and gas industry has proven that over the long-term, it is possible lead in energy production and environmental stewardship.

By focusing on more efficient use of energy, it is possible to lower emissions without imposing a carbon tax or even more environmental restrictions. Energy policy that values innovation over regulation can turn energy policy challenges into great opportunities for economic growth and energy security. This approach is not just good business, it's good stewardship and a much better strategy for improving the quality of life for all.

Energy prices affect all corners of the economy, and keeping up with demand is essential for maintaining a high standard of living. Thankfully, that doesn't require abandoning efforts to protect the environment, because newer technology is cleaner technology. The key is to avoid placing unnecessary political or legal obstacles in the way of innovation and expansion.

Energy Matters – A Lot – In the last 200 years, global life expectancy has doubled. Extreme poverty has dropped by 80%. The growth in human liberty and the dramatic increase in available energy are likely the two main catalysts for this tremendous progress.

Few doubt that energy has improved lives and enabled human progress. Yet one of the biggest challenges facing the world is the polarized debate over the future of energy. Facts and economics are too often replaced with assertions and emotions. Discussions about fossil fuels and alternative energy sources often degenerate into a battle to delegitimize the other side. This is a recipe for inaction. And it keeps billions of people trapped in energy poverty. Almost 40% of humanity, or three billion people, have access to only rudimentary forms of energy and a very low standard living. The world expects and deserves better.

We should avoid energy policies driven by a zero-sum philosophy for energy that says we must have less fossil fuel so we can have more of something else. History has shown that short-sighted energy plans often fail because they start with a preferred resource and work backwards.

According to the EPA, the U.S. decreased energy related CO_2 emissions since 2005 more than any other country. America leads the world in environmental quality.

It doesn't make sense to place unnecessary political and legal obstacles in the way of responsible American oil and natural gas production, cancel oil pipelines, discourage investment in fossil fuels, stimulate demand through outlandish spending, and then beg OPEC+ (where oil is produced under much less-strict environmental standards) for more oil to contain inflation.

The oil and gas industry has done such a good job of creating abundant, affordable, always-available energy that the world takes it for granted. Energy is so woven into our daily lives that few question whether it will be there, or where it comes from. Because energy is so reliable and available, the public believes they no longer require it.

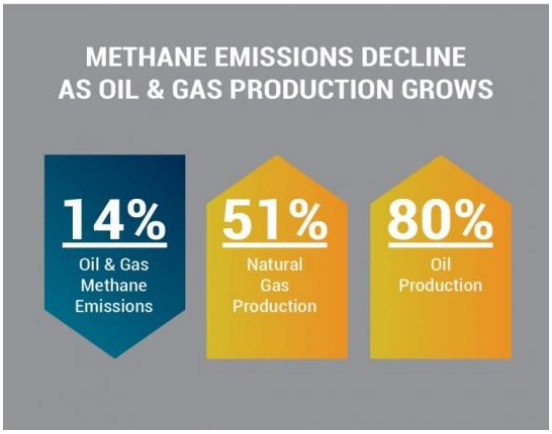
We often encounter this paradox anytime we engage in a conversation about energy and the environment. Some folks assume that we don't need fossil fuels anymore. A stark example is anyone who wants to end oil and gas production while still benefitting from oil and gas based materials and fuels.

Economic prosperity allows countries to invest in new technologies and policies that improve not only environmental health but also the well-being of the people. Thus, if we want to continue to improve our relationship with the environment and human progress, we should be more supportive of economic growth and the entrepreneurship that drives it. We should all work together to ensure more people have access to safe, affordable, and reliable energy.

Emissions – From 2005 through 2017, the U.S. has led the way by reducing our carbon emissions by 617 million metric tons. The second leading nation (United Kingdom) coming in far behind the U.S. at 163 million metric tons, less than one-third of what we have accomplished as a nation.

Additionally, according to EPA, American oil and natural gas producers have reduced methane emissions (1990-2017) by 14% while increasing natural gas production by 51% and oil production 80% over that same time frame.

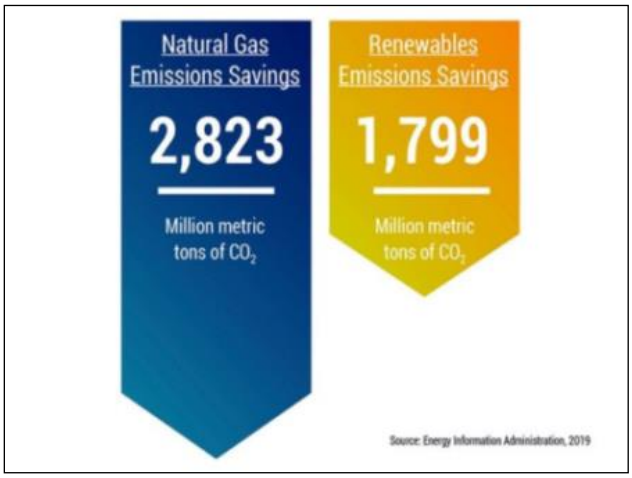
Further, scientific consensus is that the benefits of natural gas use continue to accrue. Fourteen different studies show that leakage rates from the industry range from .4% to 1.7%, well below the consensus average of 3.2% for natural gas to be an environmentally beneficial alternative.



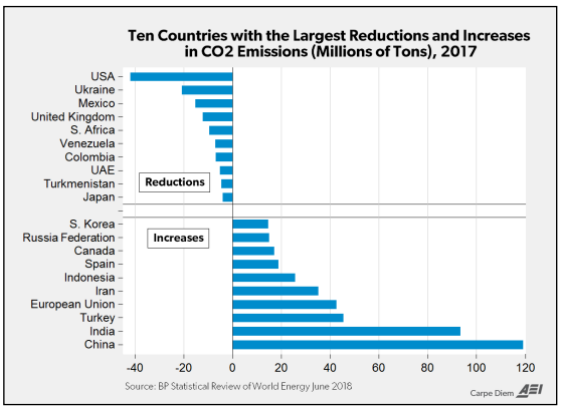
Source: U.S. EPA, U.S. EIA 1990-2017

The fact is our nation's 21st century oil and gas market-driven success has helped our nation achieve significant emission reductions. The U.S. emitted 14% fewer energy-related carbon emissions in 2019 than 2005. As a result of technology and efficiency measures, emissions relative to oil and natural gas production were down nearly 70% between 2011 and 2019 and are expected to continue to trend downward.

Energy Information Administration (EIA) data (2019) show natural gas is responsible for 2.8 billion metric tons of carbon dioxide emission reductions since 2005. That represents 61% of overall power sector reductions during that time-frame and 57% more than reductions attributable to renewables.



The EIA reports U.S. carbon emissions are the lowest they have been in nearly seven decades. Even more interesting is the fact that U.S. carbon emissions dropped while emissions from energy consumption for the rest of world increased by 1.6%. The U.S. emitted 15.6 metric tons of CO_2 per person in 1950. After rising for decades, it has declined in recent years to 15.8 metric tons per person in 2017, the lowest measured levels in 67 years. European emissions rose 2.5% and Chinese emissions rose 1.6%. **America leads the world in environmental quality.**



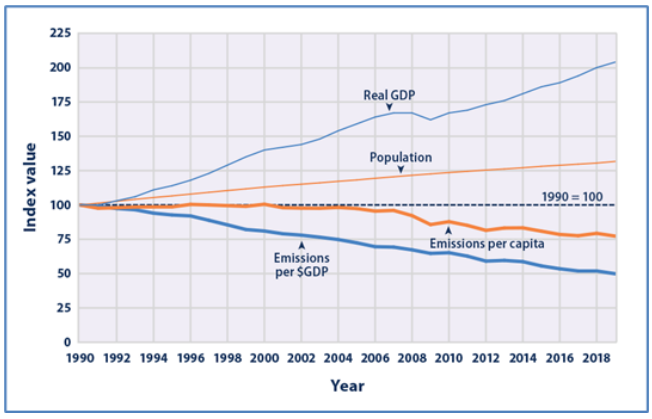
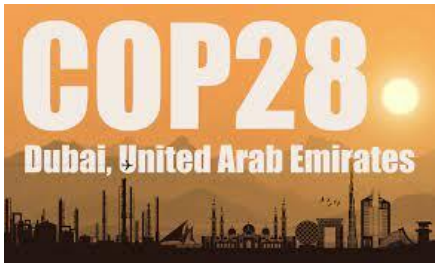


Figure 4 illustrates the significant decline in U.S. greenhouse gas emissions

The men and women of the oil and gas industry reject the stale mindset of last century's thinking peddled by some that oil/gas production and environmental stewardship are not compatible.

COP28 Climate Talks – The United Nation's Intergovernmental Panel on Climate Change (IPCC) released their latest climate report in late 2023. While the 133 report authors are undoubtedly well accomplished in their scientific fields, they fail to understand the unintended consequences and high taxpayer and consumer costs that come with climate action. They want to drastically cut carbon emissions worldwide to limit global warming by 1.5 degrees over the next few decades. In order to meet the 1.5 degree goal, the IPCC envisions a future where people travel less using buses, trains, and electric cars. And in order to overhaul agricultural and land-use practices, the IPCC suggests eating less meat. Going all in to limit warming to a degree and a half would mean bilking the poor around the world while increasing other environmental harms.

What condemns the current plan is the IPCC's acknowledgement that even if the world stopped all industrial GHG emissions tomorrow, there would be no noticeable drop in temperature for thirty years. Will 8 billion people deprive themselves for the next 30 years to achieve net zero, as urged by the IPCC? They won't.



Global climate summits like the United Nations Conference of the Parties (COP 28) held in December in Dubai, United Arab Emirates are nothing more than expensive energy-burning theater. From the air-conditioned comfort of their private jets, climate alarmists fumed that the presence of oil and gas companies at the conference somehow delegitimizes the entire proceeding. They claim that the world's future is their priority, but their actions reveal a disdain for humanity that should undermine any ideas they propose. Their main message is people should use less and do with less.

The COP28 climate summit in Dubai, UAE ended last December without a global agreement for the phaseout of oil and gas. There have been 28 climate summits since 1995. Every year, there is a lot of talk about shifting away from fossil fuels and a lot of financial commitments. Only both oil and gas demand continue to rise. Oil-producing nations are opposed to an oil and gas phaseout.

The Biden Administration should have touted America's successes in reducing emissions. Since 2005, U.S. energy-related emissions fell by 10% as the economy grew by 25%. The Biden Administration should have compared that to the fact that energy-related emissions from the rest of the world have increased by 24%. The president should have stood up for his people. Our people.

The Biden Administration did not say a word about the record-breaking U.S. oil output in 2023. And it was the Biden Administration that sold 180 million barrels of oil from the *Strategic Petroleum Reserve* to keep prices at the pump low. Climate summits like COP28 are nothing more than expensive energy-burning theater. Their main message is that people should use less and do with less. Climate summits should focus on emission reductions, not energy choices.

The truth about climate summits and energy policy is that people don't want high energy costs, and their governments must respond – in China, in Europe, or in America the ramifications of high energy costs are politically dangerous whether they go to the ballot box or have revolutions.

Despite the perspective global warming advocates encourage, the environmental consequences of GHG emissions are based on unsettled science. That makes global climate agreements tough. But since China, like India, has not agreed to global climate emissions cuts, the West will just have to reduce its own emissions even more.

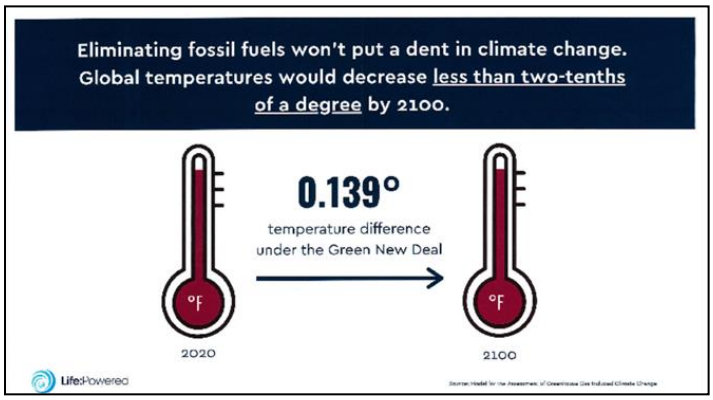
Now the USEPA is trying to contort little used regulatory theories to regulate GHG and methane emissions. Harmful, top-down policies that affect the price and availability of energy for every American consumer should not be carried out by unelected EPA officials.

Global climate agreements are very difficult to achieve. Even if such global climate initiatives were put into effect tomorrow, they would barely affect global warming. That is because carbon dioxide (CO_2) makes up less than 4% of GHG. Water vapor accounts for about 95%.

Anthropogenic (man-made) Contributions to Greenhouse Gases Expressed as a % of Total (water vapor included)

Based on concentrations (ppb) adjusted for heat retention characteristics	% of Greenhouse Effect	% Natural	% Man-made
Water Vapor	95.000%	94.999%	0.001%
Carbon Dioxide (CO_2)	3.618%	3.502%	0.117%
Methane (CH_4)	0.360%	0.294%	0.066%
Nitrous Oxide (N_2O)	0.950%	0.903%	0.047%
Misc. gases	0.072%	0.025%	0.047%
Total	100.00%	99.72%	0.28%

Using the temperature assumptions put out by the United Nations Intergovernmental Panel on Climate Change (IPCC), if the U.S. eliminated all CO_2 emissions immediately, it would avert 0.07 degrees of global warming by 2050 and less than 0.2 degrees by 2100. How many lost jobs is that worth?



America leads the world in environmental quality, and we have made unprecedented progress while our population, economy, and energy consumption has grown. Emissions of the six "criteria pollutants" monitored by the EPA are down 77% since 1970. Over the same period USGDP increased by 285%, vehicle miles traveled increased by 195%, population increased by 60%, and energy use increased by 48%. Meanwhile, emissions from the rest of the world have risen by 24%, led by China and India.

The truth of climate summits and energy policy is that people don't want high energy costs or to be cold, and their governments must respond – in China, in Europe, or in America the ramifications of high energy costs and cold citizens are politically dangerous whether they go to the ballot box or have revolutions.

Global warming is a big challenge for sure. But the oil and natural gas industry can help solve it. The 'Net Zero' campaign stops climate change only by increasing widespread global poverty. Inexpensive energy is necessary for economic advancement by the world's poor and for economic recovery. Ideological opposition to fossil fuels is an anti-human stance that views ordinary people not as problem-solving sources of ingenuity, but only as mouths to feed producing environmental damage.

On the other hand, the U.S. has a unique opportunity to show the world how energy abundance can be used as a positive force to lift people up, which is different than a zero-emissions world. We should work to ensure more people have access to safe, affordable, and reliable energy. Because to rise out of poverty and enjoy health and safety, people need more energy, not less.

Carbon Tax – Taxing carbon to tackle climate change may sound like a good idea. However, a nationwide survey conducted in 2021 indicated Americans don't place high priority on climate change. When asked how much they are willing to pay to address climate change, the median response was consistently between $25 and $50 a year. Public support for climate action appears to be broad, but it is shallow. Addressing climate change enjoys widespread approval, until climate action comes with a tangible price tag.

All too often proposals to tax carbon have much more to do with raising revenue than helping our environment. However, taxing carbon only takes more resources from the private sector to support swelling state and federal government.

A recent study analyzed probable effects of a U.S. carbon tax that starts at $20 per ton and then rises 4% per year, which is in line with recent proposals. The study suggests that such a tax would decrease household consumption, due to the increased cost of goods. The average household would have to pay 40% more for natural gas, 13% more for electricity, and more than 20 cents per gallon extra for gasoline. Costs would rise even more in subsequent years.

Price hikes like these can only mean lower standards of living and less opportunity. Families that spend a bigger portion of their household income on transportation, utilities and household goods are hurt, not helped, by carbon tax schemes that make traditional forms of energy more expensive.

Recently, some major integrated companies have supported a carbon tax. Clearly, this is just a ploy to stifle competition. Major integrated companies can pass along tax increases to consumers while small companies that are not integrated from production through end-product do not have the ability to pass along tax increases.

U.S. Doesn't Need a Carbon Tax – Even if the U.S. imposed some kind of carbon tax, it would not make a difference to global climate. In 2018, U.S. carbon emissions were around 5,100 billion metric tons from all sources, an almost 20% drop below emissions in 2007. While U.S. greenhouse gas emissions have been falling in recent years, world carbon emissions keep increasing by an average of more than 300 gigatons each year for the last decade, driven primarily by China's and India's increasing demand for energy. Together, these two countries now account for one-third of world carbon emissions. China and India are not going to impose a carbon tax on themselves. Doing so would increase their energy costs and reduce their economic growth. Neither will Russia, nor countries in the Middle East, nor developing nations whose primary concern is improving the economic well-being of their citizens.

Lesser Prairie Chicken – The U.S. Fish & Wildlife Service (USFWS) listed the Lesser Prairie Chicken (LPC) as a threatened/endangered species in March 2023. Listing of the LPC as a "threatened" species in Kansas under the Endangered Species Act (ESA) makes it illegal to so much as disrupt the normal habits of a LPC in much of western Kansas.

The best scientific and commercial information available demonstrates that the LPC does not meet the ESA's definitions of either a threatened or endangered species. None of the five factors utilized by the USFWS under the ESA to determine if a species is endangered or threatened are present in the case of the LPC in Kansas. The LPC has a stable and growing habitat and range. There is no overutilization that places the species at risk. There is no disease or predation beyond the typical norm. There are adequate existing regulatory mechanisms in place that have already produced demonstrable successes. And there are no other natural or manmade factors that affect the continued viability of the species. In short, there is no basis for action under the ESA and its implementing regulations.

KIOGA has joined in legal action against the USFWS concerning the listing of the LPC. The legal challenge is being led by the Permian Basin Petroleum Association (PBPA) and includes KIOGA, Petroleum Alliance of Oklahoma, National Cattleman's Beef Association, Texas Cattle Feeders Association, Kansas Livestock Association, Oklahoma Cattlemen's Association, New Mexico Cattle Growers Association, and several New Mexico Counties. In addition, the Kansas, Oklahoma, and Texas Attorney Generals (AGs) also filed legal action against the LPC concerning the listing of the LPC. The Kansas Natural Resources Coalition (KNRC) filed an additional LPC lawsuit in July challenging the 4(d) grazing rule and restrictions in Kansas, but not the actual "threatened" listing. The Federal Judge consolidated all the cases and transferred all the cases to the Western District of Texas. The case is currently proceeding.

What can be done to preserve America's affordable, reliable energy?

Inflation continues to stoke the public's concerns about the eroding value of their dollars. The Biden administration has publicly committed to "end fossil fuels" and forcibly shift U.S. energy production from oil and gas to "renewable" solar and wind. That means explicitly blocking oil and gas drilling, but also discouraging investment in parts of the energy industry disfavored by the regulatory environment. Refiners are unlikely to invest hundreds of millions of dollars in recommissioning costs for only one or two years of strong returns. What the Biden administration is missing is the fact that stopping production of energy actually makes it more expensive. The White is currently checking with their in-house "experts" to see if that fact aligns with "indigenous knowledge."

As the U.S. continues to grapple with high inflation, market volatility, and economic pessimism, American families continue to see costs of important goods and services rise. Energy has been no exception. From 2008-2019, American families have seen the increased costs to fundamental needs.

This means a family budget that needs to account for keeping the lights on, the family fed, keeping the family healthy, and providing for their children's future has only seen price relief from lowered energy costs while critical needs in other areas have risen dramatically. We understand the need to provide reliable, affordable energy to residential, industrial, and

commercial consumers to ensure economic stability. We have also heard the concerns of Americans related to ensuring we protect the environment and mitigate environmental impact as we produce energy in the United States.

Environmental policies needed going forward include:

- Assuring adequate access to capital by having sound tax and banking practices rather than using tax and financial policies to cripple American oil and natural gas production.

- Assuring a predictable and cost-effective regulatory system that recognizes the diversity of oil and gas production, including large versus small wells and large versus small businesses.

- Recognize in energy and economic policy that oil and natural gas will be essential energy sources for the foreseeable future, that American oil and natural gas production is more environmentally sound than most foreign sources, that reliance of foreign sources of energy will undermine the American economy and any agenda to improve its environment, and that on a global scale there are many countries where oil and natural gas provide a better option than their current sources and a more realistic one than overreliance on perceived clean energy sources.

- Technology within industry often moves faster than the regulatory systems within government. Providing regulatory agencies with tools for better deployment of more accurate and cost-effective technologies are important policy changes to consider.

Ultimately, three things can be done to preserve America's affordable, reliable energy.

1. Oppose extending/expanding subsidies that use tax dollars to prop up unreliable renewable energy companies, many of which can't make a profit without them.
2. Roll back burdensome regulations that tie the hands of America's responsible energy workers and give the upper hand to hostile, unstable, and polluting foreign countries.
3. Fight "energy discrimination" and politically motivated investing that denies financing to energy producers.

Fossil Fuels Will Continue to Dominate for Decades to Come

President Biden rejoined the Paris Climate Agreement and promised to set aside $2 trillion for decarbonization. Reality creates two major problems. First is achieving the adoption of renewable energy at an incredibly unrealistic speed. The second is ensuring that the system we are transitioning to does what it needs to do. It is important to note that we do not currently have the technology needed to reduce carbon emissions to the levels set out in the Paris Climate Agreement.

Another obstacle is the inherent limitations of renewable energy sources. One of these is power density (amount of power per unit volume). The power density of an energy system running on fossil fuels is two or three orders of magnitude above that of a wind or hydro-generation system. Closely related to this concept is the element of spatial constraints.

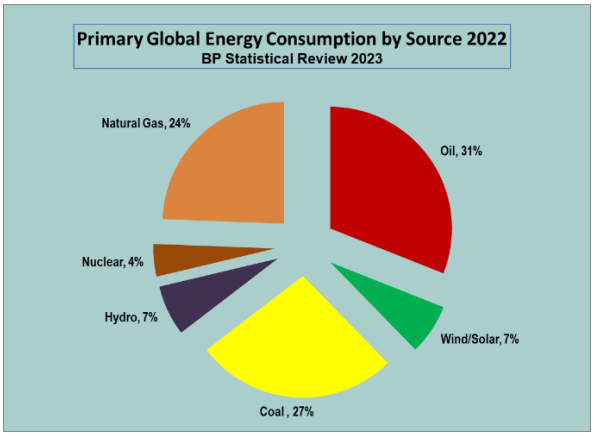
Renewable energy systems, due to their low power density, require vast swaths of land. An MIT study predicts 33,000 square miles of land would be required to power U.S. electricity demand with solar energy. The U.S. would have to dedicate 30%-50% of its landmass to solar and wind to satiate U.S. energy consumption with renewables.

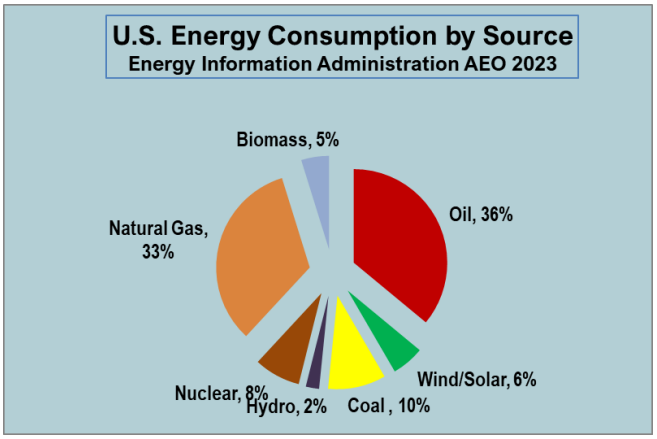
While the ambitious pledges from various international bodies and governments would suggest the energy transition is near, the gap between theory and reality is vast. Fossil fuels supplied 82% of global energy needs in 2022. It will likely be decades before an energy transition can take place. The energy transition may have begun, but there is a very long way to go before fossil fuel dominance is truly challenged.

Primary energy consumption continues to grow worldwide. As a overall share of energy consumption, oil remained on top with 31% of all energy consumption. The remainder of global energy consumption came from coal (27%), natural gas (24%), hydropower (6%), renewables (5%), and nuclear power (4%). Cumulatively, fossil fuels still accounted for 82% of the world's primary energy consumption in 2022.

Renewable energy sources, led by wind and solar, are expected to grow briskly in the coming decades and could approach 11% of the global energy mix by 2045. Renewable energy remains too unreliable and expensive to be a primary energy source.

The U.S. Energy Information Administration (EIA) reports that oil and natural gas supplied 68% of U.S. energy in 2022. By 2045, the EIA estimates that oil and natural gas will supply roughly 50% of U.S. energy needs. Globally, the EIA projects that by 2050, world energy demand will increase by 23%, and 50% of that demand will be supplied by oil and natural gas.





What will power the U.S. in the future? - The EIA estimates that 30 years from now fossil fuels will account for 69% of our country's energy consumption.

The 2022 World Energy Outlook projects that by 2045, world energy demand will increase by 23% and 50% of that demand will be supplied by oil and natural gas. Oil and natural gas are expected to remain the primary energy sources through 2050.

The end of oil and gas has been predicted on a regular basis since 1885, yet today, we use more of both than ever before and no end is in sight. Figure 5 shows global primary energy consumption by energy source projected to 2050. Oil's share of total world energy demand in 2045 will only decline from 30.9% today to 28.6% in 2045.

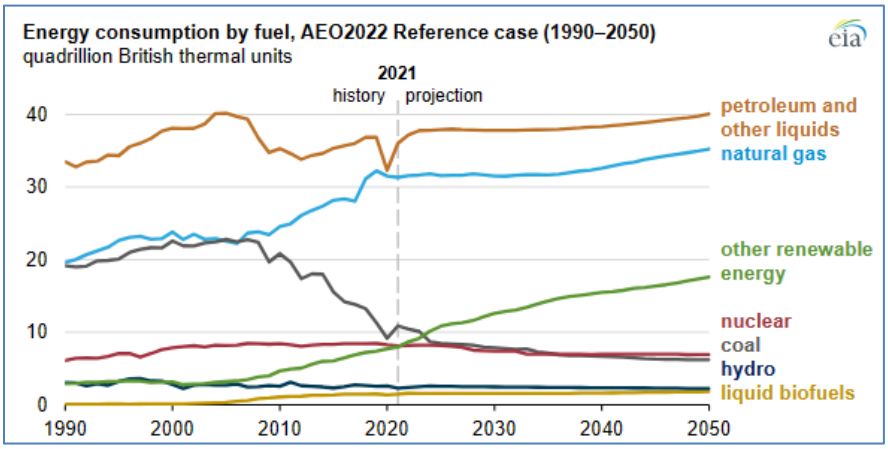


Figure 5

Fig 5 illustrates global primary energy consumption by energy source. By 2050, oil and gas are projected to supply roughly 50% of global energy needs. Source: Energy Information Administration (EIA)

When looking at energy policy it is important to know that our nation is the worldwide leader in energy production. With the right energy policy, we can now move forward and build upon our nation's energy abundance, self-determination, and global energy leadership. We need tax policies that don't compromise our ability to grow the economy and create jobs. We need regulatory reforms that don't add unnecessary layers of compliance burdens on top of existing protections. We encourage everyone to listen to the facts when it comes to energy policy discussions and focus on what's important: American jobs, American energy security, and American global energy leadership.