OIL AND GAS INVESTOR 40TH ANNIVERSARY

OBSERVATIONS FROM INDUSTRY THOUGHT LEADERS

When Oil and Gas Investor *launched 40 years ago during the summer of 1981, it was the first industry publication to focus on the financial aspect of exploring for hydrocarbons versus the technical side. Ronald Reagan had just taken office as president and immediately deregulated crude oil prices, and prices spiked that year due to the Iran-Iraq War. But the free-market pricing launched a boom in production domestically, and investors wanted a piece of that action.*

To celebrate those four decades of conversations we've had with myriad industry executives, we reached out to a number of them for their thoughts on the industry's past, present and future. We asked them to answer one or more of four questions: 1) Where were you 40 years ago or what was your first job in the oil and gas industry if less than 40 years? 2) What was the most impactful event in the industry during your career or past 40 years? 3) What do you hope will happen in the oil and gas industry in the next 10 years? And, 4) If you could change the oil and gas industry in one way or invent something to improve it, what would it be?

Their responses follow. May we learn from our past and proactively shape our future.

W&T Offshore CEO Tracy Krohn's first job in oil and gas was as an offshore roustabout, which inspired him to become a petroleum engineer.

TRACY KROHN

CEO & PRESIDENT, W&T OFFSHORE

First job: My first job in the oil and gas industry was actually 48 years ago when I was hired as a roustabout to work offshore in the Gulf of Mexico. That was like a boot camp for anyone getting into the energy business. That experience made me realize how that job was far bigger than me and that I needed to go to school to be an engineer, which I did at LSU and got my petroleum engineering degree in 1978.

Most impactful event: While there have been a number impactful events and technologies developed during that time span, I believe OPEC consistently has had the biggest impact on our industry.

Hope will happen: I hope that the public will realize that our industry is not killing the planet. In fact, our industry has had a major positive impact on increasing our world's population and extending and improving all our lives through products developed using hydrocarbons.

What change like to see: I think we must stop intentionally flaring natural gas and need to use it wisely and efficiently to replace thermal coal. While renewables will play a role in providing energy in the future, they are not sufficiently reliable at this point, and we will need hydrocarbons for many years to come.

ALAN SMITH

PRESIDENT AND CEO, ROCKCLIFF ENERGY LLC

First job: Production engineer in Longview, Texas, for ARCO. My goal at that point was to learn the business from the ground floor upward, which led to operational roles (drilling and production), reservoir, planning and business development. That all took about 10 years to get "grounded."

Most impactful event: Shale—and 3-D seismic before that. Both were game changers for our business.

Hope will happen: That the leaders and employees in our business would be proud of the prosperity that we have contributed to the world—more clean water, more food, great lifestyles of travel, clothing and adventure, and healthcare contributions. We have to stop apologizing for what we do and be proud that we do our work carefully, safely with the most minimal environmental footprints possible and make a real positive difference in the world.

DAN PICKERING

FOUNDER, CHIEF INVESTMENT OFFICER, PICKERING ENERGY PARTNERS

First job: My first job in the oil patch was a summer stint in 1985 as a Phillips 66 roustabout in Oklahoma. Newly minted engineering graduates were working in the field because office jobs were impossible to find. The work was hard, the weather was hot, the people were genuine and I was a mediocre hand. I was useful only for scraping welds and mowing lawns around lease buildings, earning the nickname "Dangerous Dan The Missouri Mowing Man."

Most impactful event: The shale boom turned the U.S. and global energy industry upside down. A business that had seen declining production for 30-plus years suddenly became a growth industry. U.S. rig activity exploded. Capital flooded into the oil patch. Billionaires were created. And the U.S. once again became the most important player in the global oil market. An amazing decade that came crashing down with equally spectacular fireworks. Macondo and Exxon Valdez incidents are close seconds in this category.

Hope will happen: I am hopeful the oil and gas industry will emerge from the malaise of investor disdain and cloud of climate change/decarbonization and be recognized as an industry that is delivering crucial commodities which make the world a better place. This will require better, lower-carbon operating practices and adherence to a business model that delivers above average cash returns to investors. This will be neither quick nor easy, but it is possible!

What you would invent: Nature has invented no better way of storing energy than via hydrocarbons. So the most valuable invention in the history of the world would be a magic wand, gizmo or adapter that would strip "bad stuff" from oil and gas at the wellhead or even downhole. Never let it get above ground. Never let it be combusted. Never let it into the atmosphere. Just zap it beforehand and deliver that amazing energy density on a guilt-free basis.

BILL MARKO

MANAGING DIRECTOR, JEFFERIES

First job: My first job in the business in 1980 was a Gulf of Mexico facilities engineer for Mobil Oil. It was in the later innings of the mid '70s to early '80s shelf development boom in the Gulf of Mexico, a decade before the initial deepwater Gulf of Mexico. I, naively, actually thought I would work for Mobil for 50 years and retire at 70 years old!

Most impactful event: For me it was the creation of the "food chain" in upstream oil and gas properties. Following the 1986 oil price crash, the major oil companies decided to sell properties that were not generating profits and therefore credited the A&D market, which led to the private capital market and many other aspects of today's well-oiled food chain.

PATRICK NOYES

CEO, GRENADIER ENERGY III

First job: I'm 45 years in this industry. My first job was at Exxon in 1976. I'm a mechanical engineer by training but a petroleum engineer by experience and due to the excellent training they do at Exxon. Then I was with Mitchell Energy & Development for 20-some years and was vice president of drilling. So, I was blessed to see the persistence of Mr. [George] Mitchell. It took us 17 years to evolve and prove the Barnett Shale.

Most impactful event: That's very easy—the whole shale revolution has for sure changed our industry in a significantly positive way. I remember years ago reading a book predicting peak oil, and I believed it then. This made sense to me at the time. It's unbelievable what technology has done.

What change like to see: I believe worldwide energy demand will continue to grow, and we can't meet all that with just renewables. Fossil fuels are going to be around; they are not going anywhere. What I'd highly desire is to see if our industry could find a way to produce a cleaner barrel of oil and a cleaner Mcf of gas. That is happening, but not as fast as I would like. We made significant strides at Grenadier II, and we got our flaring down to close to 1% of production and headed lower. We just need to do better from the standpoint of emissions.

RICK MUNCRIEF

PRESIDENT & CEO, DEVON ENERGY

First job: At 17 years of age, my parents signed a minor's release, and I worked as an employee on a casing and tubing inspection crew. After turning 18, I was able to get a job as a roughneck for Coffland Bros. Drilling Co. (now part of Nabors Drilling).

Most impactful event: Being involved with horizontal drilling in its infancy and seeing how spectacularly it has evolved.

Hope will happen: That the general public will accept how crucial our industry is on several levels and realize what a gift the energy renaissance has been for our country and the world.

What change like to see: I would like to see us continue to advance real-time emissions monitoring so, as an industry, we can realize our short-term, medium-term and longer-term emission reduction targets.

MATT GALLAGHER

PRESIDENT, GREENLAKE ENERGY VENTURES

First job: I was born in 1982, so not quite conceived at the 40 year mark! I broke out in the late '90s painting tanks and working on a single rod pulling unit in the Illinois Basin. While my friends had A/C jobs at Best Buy, I was seeing if I could fry an egg on the tops of production tanks.

Viewpoint then: I saw an industry that was built off camaraderie and hard work in the fields, where many practical inventions were still being made more than 100 years into the industry and a potential to travel the world and work on massive projects.

Most impactful event: I believe the financial crisis of 2008 caused people to go horizontal in the Permian—and that changed shale as we know it.

Hope will happen: I believe the industry will get leaner, more efficient and cleaner.

What change like to see: I'd fight for us all to spend a meaningful amount on grassroots education of the impactfulness of our industry.

Invention: It would be a product to capture all tailpipe emissions of ICUs. A membrane or suitcase of sorts that can be properly disposed of in a solid state.

STEVE PRUETT

PRESIDENT & CEO, ELEVATION RESOURCES

First job: Forty years ago I was working as an offshore roustabout for Sun Oil in the Gulf of Mexico. My oilfield work actually started in a welding shop in Odessa at age 16 followed by working as a compressor mechanic and truck driver at 17 serving the Permian Basin. What I learned from working in the field is that I needed to earn an engineering degree to accomplish my life goals.

Most impactful event: Volatility of oil and gas prices has driven exits by major oil companies from U.S. basins, layoffs, office closures, followed by reentry into the unconventional plays at times. I started my professional career with ARCO where I worked as a petroleum engineer for five years—some of the best years of my adult life as the leadership was wonderful, and I loved being an engineer. I left to get an MBA because I was impatient and overly ambitious. I worked for Amoco post-MBA, who had great assets in the U.S. Both companies sadly sold out to BP after I departed for the private equity world. The majors' lack of consistent commitment to domestic upstream investment is hard to understand.

Hope will happen: I hope our domestic upstream industry becomes more environmentally responsible for the impact of our actions and for what our predecessors left behind that needs remediation. I don't mean that our industry is responsible for Scope 3 emissions (what consumers of petroleum emit), but we can reduce emissions, oil and saltwater spills and seismic impact from produced water disposal.

I hope the public comes to appreciate the importance of petroleum in their economic well-being and quality of life. The green energy transition will burden consumers with higher energy costs that will cascade through every purchase from transportation to food and materials, all of which have significant energy inputs. (I don't see Americans reducing their use of air conditioning or heating, curtailing their travel or reducing their online purchases.)

The green energy vision is going to require trillions of dollars of investment, innovation and patience on the part of the public (e.g., blackouts). Producing batteries needed for EVs will require a massive amount of materials including lithium, cobalt and copper. If I were young, I'd get into the mining of rare earth metals used in batteries. The green

energy promoters don't understand how much earth has to be moved (and destroyed) to produce the batteries and where the mining takes place today (e.g., Africa and China), and heavy equipment used in mining consumes massive amounts of diesel.

Further, we'll need trillions of investment in renewable power generation (and backup power) and the related transmission and distribution of electricity and charging stations that don't exist today.

What change like to see: Reduce emissions, reduce flaring and improve emissions monitoring, all of which our company is working on now in our operations. Improved environmental compliance and reporting is needed, which inevitably is going to be required. There are a lot of platitudes in public company sustainability reports, but I am not seeing much happen on the ground yet in scale other than wind and solar farms in the Permian Basin.

Reducing emissions is cheap compared to carbon capture and sequestration. Carbon capture is going to be a lot more expensive and less impactful due to the huge energy requirements to pressurize the CO_2 to inject it and store it underground. There is not enough subsurface storage capacity that is not already pressurized by existing waterflood or CO_2 enhanced oil recovery operations. Enabling Earth to absorb more carbon is much more cost effective than taking CO_2 out of the atmosphere. According to the Salk Institute, Earth emits 840 Gt/year of CO_2, absorbs 860 Gt/year, while mankind emits 35 Gt/year, thus creating a 15 Gt/year excess. I have more confidence in investments to enable Earth to absorb 1.7% more CO_2 than getting our growing population to reduce emissions by 15 Gt/year or 43%. Salk and other research institutions are working on smarter ways to farm and engineer plants to make this happen.

GEORGE YATES

CEO, HEYCO ENERGY GROUP

40 years ago: Forty years ago, I was working with my team at HEYCO to prove the Bone Springs Sand in the Delaware Basin could be commercial. We worked with some brilliant scientists with Sandia Labs (who later helped George Mitchell in the Barnett) to better understand the reservoir and drilled the first horizontal well in the 2nd Sand with their help. The horizontal was all of 300 ft and dashed our hope of finding vertical fractures. We developed the sand as a vertical play before multistage hydraulic fracturing. It has, of course, grown into one of the best horizontal plays in the best basin in the country.

Most impactful event: The most impactful event during my career was the development of technology to mine source rocks—the unconventional revolution. Through innovation, independents truly changed the world. A companion event was the globalization of natural gas (LNG), which is continuing to open up markets that would otherwise never be reached.

Hope will happen: My hope for the next decade is that the industry and the product we provide will be accepted as an irreplaceable source of prosperity. Reasonably priced and dependable power will continue to help lift untold millions out of poverty. And the industry will continue to innovate and outcompete.

What change like to see: I have always been proud of the independent oil and gas industry, and I'm sure that pride will endure. If I could change the industry it would be to encourage more CEOs to speak out about the virtues of oil and gas and never apologize as if hydrocarbons were a necessary evil, as some do, rather than a gift that has lifted man (and especially women) from backbreaking toil into the bountiful opportunities in the modern age. And made our planet greener and cleaner in the process.

REGINA MAYOR

GLOBAL HEAD OF ENERGY, KPMG

First job: I arrived in Houston almost 30 years ago, and my first oil and gas consulting client was Enron. I remember being in the lobby of the main building and looking at a magazine cover broadcasting "Peak Oil," fearing that the world would run out of oil! It's astounding to me that we now forecast "Peak Demand."

My second client was a refiner in Kentucky. After spending lots of time in my Nomex coveralls and steel-toed boots driving my rental car from control room to control room, I fell in love. I have been immersed in the industry and a strong advocate ever since!

Most impactful event: So many events showed me the vulnerability, but ultimate resilience, of the oil and gas industry. I watched as Enron failed—buying stock at $12 per share because, surely, it can't get any lower than that! And then watching my friends at Arthur Andersen who were also affected. Then the tragic loss of life and devastation of the Deepwater Horizon and how the industry rallied together to shut down the well. The various boom and bust commodity price cycles, including this last one during the pandemic.

The industry is incredible—innovative, adaptive, collaborative, resilient. We have experienced highs and lows but, together, the industry makes the world a better place and improves the human condition.

Hope will happen: I hope the industry leans into the energy transition and shows the world how we can decarbonize the planet while

still providing reliable, affordable and clean energy. We are leading from the front. I am truly excited to be a part of history as the industry embraces change and solves the many technical challenges to drive an economic transition to lower carbon sources of fuel. I can't wait!

SUBASH CHANDRA

MANAGING DIRECTOR, SENIOR RESEARCH ANALYST, NORTHLAND CAPITAL MARKETS

First job: First job in the industry was as an E&P analyst at AG Edwards in 1995. The GoM was hot then with the advent of 3-D seismic. Small-cap E&Ps were about to take off as the majors abandoned the Lower 48. Some things have changed, some are the same. I remember a company quoting an investor to always observe the No. 1 rule in E&P: Never take on too much debt.

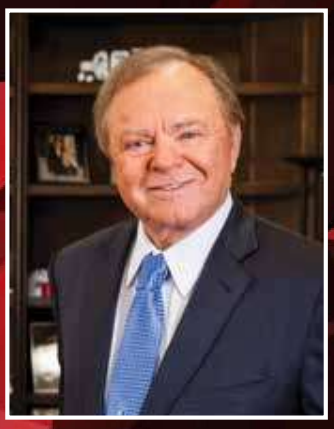
Most impactful event: Shale development was the most significant event, which upturned long-held views about U.S. energy dependence. We were inching toward shale with other unconventional resources such as coal-bed methane and basin-sourced gas. The appeal to the investor was immediately obvious. The language got a lot easier to understand and reward in the stock market. We didn't need terms like "three-way closure," "lowest known gas," "upthrown" or "downthrown" to describe the upside.

The second most significant is now when the world is moving rapidly toward carbon mitigation and decarbonization. The risk is to see this as a political development instead of a structural one. The oil and gas markets are not going away for a long time. To have the U.S. dominate the global supply of "responsibly sourced" hydrocarbons is something to look forward to.

Hope will happen: I hope the oil and gas industry plays a defining role in clean energy, whether it is through carbon capture, hydrogen, methane detection, carbon offsets or certification of oil and gas volumes to achieve the highest environmental standards globally. It is good to see industry leaders grasp the gravity of the situation, positioning the industry as a partner rather than an obstacle to the response to climate change.

What change like to see: I would fill the pore space with minerals critical to the green tech revolution so the U.S. can be as independent in nickel or cobalt as it is in oil and gas. Since that is as likely as getting my hair back, I would wish industry stays on the current path resolutely. Focus on cash returns to shareholders, reinvest a fraction of cash flows, reduce

HAROLD HAMM'S PERSPECTIVE



Reflecting on more than 50 years in the oil and gas industry, Harold Hamm, chairman and founder, Continental Resources Inc., points to the use of horizontal drilling as a key point in the evolution of the industry.

But he also laments that way in which energy has become a lightning rod, both for politicians and environmentalists, despite the persistent realities of the need for fossil fuels that fuel the economy.

"We're in a weird time," Hamm said of climate change concerns, noting that pessimism has colored the thinking of too many people who automatically reject fossil fuels.

"Some people are really concerned, and perhaps overly concerned ... [instead of] approaching climate change in an intelligent manner. They approach it emotionally. They use words like 'never' and 'ever' to overcome what's going on, and that's not true."

Fossil fuel companies have also been robbed of their due as climate rescuers.

The decommissioning of coal burning power plants for natural gas remains a conveniently ignored fact among climate activists.

"We've changed and turned around America and cleaned our air up, and clean burning natural gas helped us do that."

The broader politicization of oil and gas, particularly by government regulators but now also by political figures, has put fossil fuel companies on top of mind. President Joe Biden's administration seems intent on eliminating the industry, he said.

"Of course that's the thing—it's all political. They, us, all as Texas Republicans," Hamm said. "It's not quite what we are. We're here in Oklahoma City.

"I head up a group of domestic energy producers, and there's a lot of Democrats—well, they have been Democrats. I'm not sure they still are."

Hamm hopes that political leaders will find a different path and a more reasonable approach for supplying energy to the world.

Hamm's view of the future for fossil fuels is shaded by the years of naysayers who have written off oil and gas—particularly after the oil crisis of the 1970s.

Predictions of oil global production peaking at 98 million barrels of oil per day, once thought of as a certainty, have also been proven wrong, Hamm said.

He sees both peak demand and peak supply as fluid, with oil perhaps a dominant source of energy for a decade or more depending on what the market dictates.

But Hamm's view is broader and bolder.

"I think we'll see oil and natural gas used not only for decades but for the next hundred years as a primary source of energy in the world."

debt to virtually nothing, limit growth to single-digits and adopt net-zero standards. It is obviously working, but we see some evidence of second-guessing at the edges.

PARKER REESE

PRESIDENT & CEO, AMEREDEV II LLC

Hope will happen: I would like to see the oil and gas industry expand its reputation for delivering high-tech solutions to critical real world problems at a global scale. This industry meets the energy needs of billions of people on a daily basis. Not just with digital ones and zeros but with billions of tons of materials, millions of employees, precision engineered equipment and a lot of human creativity. Whatever the future looks like, if it is a happy future, it will mean that the energy industry succeeded in delivering on our mission.

GREG ARMSTRONG

CO-FOUNDER, RETIRED CHAIRMAN & CEO, PLAINS ALL AMERICAN

40 years ago: In mid-1981, I was an auditor with Pricewaterhouse. I had just assisted Plains Resources with its initial public offering and was being recruited to join Plains as controller. At the time, Plains was very small with production of around 100 boe/d and just a handful of employees but had aspirations of building a large exploration and production company.

My specific career plans were fluid, but directionally I thought I would be with Plains about 10 years learning all aspects of the business and then start my own company. As it turned out, I was unexpectedly promoted to CEO in 1992 at age 34 and essentially spent the rest of my career with Plains—co-founding the entity that became Plains All American Pipeline in the mid-1990s and then leading the separation of PAA from Plains Resources in 2001.

Most impactful event: Recognition that the general deregulation of U.S. oil and gas prices and related elements that began in the 1980s would significantly impact many aspects of production, transportation, storage and marketing activities. These developments represented both a challenge and a great opportunity.

Hope will happen: In a nutshell—thoughtful entity consolidation and asset rationalization and continued practice of financial discipline; while simultaneously embracing the reality that our industry must be leading environmental stewards. I have great conviction that oil and gas will be an essential source of energy for many years to come, but industry participants need to be both financially sound and environmentally focused.

What change like to see: Better educate the public on the critical role the petroleum industry has played and will continue to play in their everyday quality of life. Petroleum products are essential elements of the vehicles they drive (whether electric or conventional), the clothes they wear, the tools, utensils, phones and computers they use and much, much more. A widespread appreciation of those aspects would make working together to better the world easier, cheaper and environmentally less impactive.

LORENZO SIMONELLI

CHAIRMAN & CEO, BAKER HUGHES

First job and viewpoint of future career: I started my career in corporate finance in the 1990s, and I spent many years working at GE across different sectors. Eventually, in 2013, I took on the role of running GE Oil & Gas as its CEO, which was subsequently merged with Baker Hughes which I have been leading as chairman, president and CEO since 2017.

When I first started out in my career, I always wanted to challenge myself, and working in an industry like ours has given me plenty of opportunities to do just that. There have been some difficult times for the industry over the years—not least economic downturns, swings in the oil price and the COVID-19 pandemic. These challenges have taught me about how to adapt in business, how to confront tough situations head on and how to persevere despite disruption.

Most impactful event: Undoubtedly, the most impactful event in my career must be the energy transition. The oil and gas industry and the global energy sector must pursue a path to net-zero carbon emissions by mid-century. The energy transition is leading to seismic changes in the industry and rightfully so. At the same time, we also need to meet the world's energy demand, especially in regions where the dominant fuel source is coal or there is not yet infrastructure for reliable access.

Electricity access opens the potential for huge societal change, and we can and should enable this progress. This dual challenge of meeting the world's energy demand while achieving the goals of the Paris Agreement is an opportunity for the industry to step up and pioneer new technologies to deliver safer, cleaner and more efficient energy to the planet. For those reasons, I believe the energy transition is the most significant event I've seen in my career.

Hope will happen: We must see more innovation through collaboration. Collaboration

helps us bring out the best in each other and spurs development faster. At Baker Hughes, we believe that to meet the world's energy demand, we need continued advancements in technology. As an energy technology company, we want to use technology to solve for emissions reductions and decarbonization, rather than focusing on a particular fuel source.

Collaboration with customers and partners to advance technology can help to reduce the carbon footprint of oil and gas, while we can also collaborate to embrace new frontiers for energy like hydrogen, CCUS, geothermal and energy storage.

What change like to see: One of the exciting aspects about working in the industry is the way we continuously innovate for the future. There's not just one technology or solution that will advance the industry—there are countless opportunities. Certainly, the use of advanced analytics and AI will make the immense amount of data we have access to more useful and help enable energy to become more efficient, more productive and more environmentally focused.

I believe the promise of digital transformation will allow us to operate more sustainably and efficiently by enhancing our ability to anticipate, track, address and report our progress on our shared journey to net-zero carbon emissions. Our industry must move in that direction, making digital transformation a required part of the journey to net-zero, and we must implement change faster.

DOUG KRENEK

PRESIDENT & CEO, SABINE OIL & GAS

40 years ago: I was still in high school trying to figure out my career path. I was going to pursue a mechanical engineering degree and try to get a job with an automaker as a design engineer. Subsequently, there was drilling in the area we lived, and my dad who was a farmer/rancher took me to some of the locations. It looked like an exciting business and had top pay so I changed my mind to pursue a petroleum engineering degree, and that's why I am doing what I do today.

Most impactful event: I think the advent of horizontal drilling along with the application of massive fracs to make the shale plays work has impacted the industry the most over my career.

Hope will happen: My hope is that the industry's technologies will continue to improve to allow it to survive as a major part of the energy equation and that the technologies we have developed can be deployed in other energy applications such as geothermal, underground carbon storage and offshore wind.

What change like to see: I think any technology that could mitigate the pollution aspect of our business would be a big breakthrough for our industry. Our industry is out of favor because of the pollution associated with it. The pollution is primarily related to CO_2 and methane emissions so that would be the primary target of the technology.

MARK MILLS

SENIOR FELLOW, MANHATTAN INSTITUTE; STRATEGIC PARTNER, MONTROSE LANE

40 years ago: Very close to 40 years ago, as part of my job for the then trade association for the commercial nuclear industry, I spent the week of the accident at Three Mile Island. That was my introduction to the Great American Energy Debate (having just, legally, immigrated from Canada) coming as it did on the heels of the second oil crisis that was triggered by the 1979 Iran-Revolution-driven, itself following that earlier, infamous 1973 Arab oil embargo.

I did not imagine back then that we'd be arguing about the same issues today, with many of the same people, and arguing about many of the same (goofy) claims about the future of energy in general and oil in particular. Go figure.

Most impactful event: It would be easy to say, and sadly it's probably appropriate to say, that it would be the global COVID-19 shutdowns. A few things in the 80 years since World War II have been so globally consequential in terms of highlighting the role of energy and oil and supply chains. The Great Lockdowns served as a kind of X-ray into both the physical realities of the world and the proclivities of so many politicians.

Hope will happen: That the industry's leaders, at least a plurality of them, will decide that it's finally time to engage in a full-throated defense of the enterprises that supply the world with hydrocarbons.

CHARIF SOUKI

CO-FOUNDER, EXECUTIVE CHAIRMAN, TELLURIAN

40 years ago: In 1981, I was living in Paris, eating good food and working as an independent investment banker. I started financing small energy companies in 1994 and founded Cheniere in 1996.

Most impactful event: As you might imagine, the shale revolution was the most impactful event for our industry. For me, it had very dramatic consequences. I had invested several years and millions of dollars building a U.S. based

LNG import facility. I was literally on-site at Sabine Pass celebrating its completion with government dignitaries when I got word that an industry report had come out noting that we could now economically access the vast natural gas reserves in the U.S. I watched as our share price crumbled and thought to myself—what now?

Fortunately, we were able to pivot, and we received the first regulatory permits to export LNG from the Lower 48. When I left Cheniere, we had an enterprise value of $30 billion, with over 30 mtpa of liquefaction under construction and 9 mtpa more permitted, so it all worked out.

What change like to see: Energy was always pivotal for our country. In the last few years, it has become pivotal for the world as well, because of our vast reserves of oil and particularly natural gas. I would like to see our industry embrace that global role. It is difficult with all the emphasis on decarbonization, but it is essential.

TONY WEBER

MANAGING PARTNER, NATURAL GAS PARTNERS

First job: My career in the energy business began in 1984—not the full 40 years that *Oil and Gas Investor* magazine is celebrating today but pretty close. My first job was as an energy loan officer for the old Mercantile Bank in Dallas. In the beginning, the job wasn't so much about making new loans as it was to collect the bad ones … it wasn't easy. But what a great training ground for a young lender. In my 15-year banking career, I don't recall making a bad loan, and I loved my job.

Thanks are in part to those early workout experiences and the terrific oilmen that I was blessed to work with along the way. Men like Curtis Mewbourne, Clayton Williams, Joe Foster, Ted Collins, Aubrey McClendon and Tim Headington to name just a few.

Most impactful event: For me, the most impactful change to our industry was the explosion of capital available to the energy industry throughout the 1990s and 2000s was so exciting. Not only the big private equity funds like NGP, but also the institutional investors, pension funds, foundations and endowments were all investing in the dramatic growth of the industry throughout America. The markets weren't always open but when they were, it was great.

Hope will happen: I'd like to see our industry continue to make strides on the advancement of women within our industry. Through the work that our firm has done partnering with Tudor, Pickering, Holt & Co., I have had the chance to meet hundreds of impressive female leaders. The numbers are improving, senior positions are increasingly being filled and the boardroom is beginning to look different, but we still have a long way to go.

What change like to see: It's clear that the current move toward reducing global carbon emissions and clean, renewable energy sources has dramatic government and shareholder tailwinds. However, I would like to see these new players acknowledge the importance of the traditional fossil fuel industry. Global demand for oil and gas isn't going away any time soon, so both sides must work together for the common good.

EMILY MCCLAIN

SENIOR ANALYST, RYSTAD ENERGY

First job: I began my career as a geophysicist for Shell in 2014 in Pittsburgh. Being hired just before the energy market saw a global financial slowdown with the surge of U.S. shale production that ultimately led to the oil price collapse of 2014 to 2016, I vividly remember the difficulty in navigating my future in those first few years as I watched and experienced the negative impact of the downturn. I was aware of the volatile/cyclical nature of the industry and was hopeful that we would see improvement, but the U.S. shale boom was both exciting and uncertain at the same time. I think having experienced such a significant downturn so early in my career really helped to strengthen my ability to adapt and handle change, in a tough-love kind of way.

Most impactful event: This past year's COVID-19 pandemic was one of the most difficult experiences both personally and professionally. In terms of my career, I was one of the many that was out of a job when the oil price war, in combination with the pandemic, led to widespread unemployment in the industry. However, I had already pivoted my career to analysis in the years prior, so I'd have to say I was in a better position to rebound from last year's layoffs.

That earlier career shift was the direct result of the 2014 to 2016 downturn which, in my opinion, was truly the most impactful event. Being in Pittsburgh and unable to relocate to Houston when Shell's office transferred, I had to get creative with my resume and reevaluate my skill set to navigate a job market with little-to-no energy geoscience openings in the area. It was a difficult challenge to overcome, but in doing so, I feel I was able to strengthen my career outlook.

Hope will happen: As the North American gas market expert at Rystad Energy, I am most hopeful for the future of natural gas in the U.S. and abroad. We are anticipating an increase in gas demand in the next decade as unconventional shale gas resources are still needed both

Ken Hersh

CO-FOUNDER, NGP ENERGY CAPITAL MANAGEMENT; PRESIDENT AND CEO, GEORGE W. BUSH PRESIDENTIAL CENTER

How has the industry changed since you began?

Given that we started the firm back in 1988, it is safe to say that the industry has matured, to say the least. We were the first private equity firm in the industry and the first to structure transactions as simply providing equity backing for emerging leaders in the business. I guess the biggest change is that nobody is now saying that our investment style is crazy and that it will never work. I am proud that we pioneered an investment methodology that has become the primary way that capital is allocated to the independent oil and gas industry today. I take great pride in our innovative approach now becoming the standard.

What changes would set the industry up for even greater success during the next 20 years?

The industry needs to understand that its primary role is to provide an essential product to consumers all over the world. As such, innovation needs to continue to reduce costs, improve recoveries and to reduce our environmental footprint in the field. Turn off the noisy distractions and focus. If you are private, act private. If you are public, act private! Do not rely on the perpetual availability of third-party capital, and avoid listening to the siren songs of fickle public market investors who do not care about the long-term health of your enterprise. The goal should be to be boring.

What are the threats to the industry's future success?

The risks to the industry are now located above ground. External factors relating to politics and regulation as well as lack of strong leadership at the industry and company levels could hinder the stability of the industry. Capital providers will try to lead the industry astray in the drive for a hasty energy transition away from fossil fuels. That day may come far in the future, but there needs to be cost-effective, reliable and plentiful substitutes in place before any smooth transition can occur. In the meantime, the industry must continue to focus on providing reliable supply at a reasonable cost while always enhancing its environmental record. Corporate leaders must continue to articulate the truth about the industry—that it powers the global economy and that reliable, cost-effective and geopolitically desirable substitutes are decades away.

Anything else you'd like to add?

This industry is a living testimonial for how capitalism can improve the quality of life. If anyone is looking for an example of what can happen when you combine American entrepreneurial ingenuity and innovative spirit with open capital markets, protection of private property and relatively stable rule of law, look no further than the U.S. independent oil and gas industry. That industry brought the world the unconventional shale revolution which has been an incredible driver of domestic economic growth while at the same time has liberated our foreign policy and literally changed the power dynamics of the world. Millions of jobs were created both directly and indirectly while reliable and cost-effective energy supplies served the country.

This revolution was not brought to you by the Chevrons or Exxons of the world, but rather the thousand independent oil and gas operators in this country—most of which are not household names. These companies tried new things, innovated and then scaled techniques that have been exported all over the world and to the larger companies who have found their ways back to the Lower 48.

I am proud of the industry and humbled to have played a part in teaching the investment world that it is a good bet to back independent entrepreneurs operating under the radar in this industry.

in the U.S. market and across global markets. North America also has the advantage of having a flexible LNG market so it will be critical to meet demand from other regions. Additionally, the U.S. has many promising projects in the pipeline setting it up to be a leader in natural gas LNG exports in the coming decade, critical to meeting demand needs of the future.

What change like to see: The first thought that came to mind, and continued to return to me while considering this question, is a simple answer: educating others. If there was an improved understanding of the critical role fossil fuels play in our society, we could overcome so much of the existing opposition toward our industry, in turn increasing participation in and encouraging positive discussions around ways to continuously improve our technologies and best practices in the energy space. We have seen significant improvements in outreach and resources to educate communities outside of the energy industry, and I hope this will continue to grow with time.

BRUCE VINCENT

FORMER PRESIDENT, SWIFT ENERGY

40 years ago: Following my service in the Navy and the oil embargo of 1973, I became an energy banker in an industry dominated by technical expertise but in need of strengthened financial acumen. The future looked particularly bright at that time and was throughout the 1970s and early 1980s up until the banking bust exacerbated by Penn Square.

Most impactful event: While the industry has had many ups and downs over the past 40 years, the one that impacted me the most was the downturn starting in 1986 with the collapse of oil prices brought on by Saudi Arabia changing their production and pricing strategy and flooding the market with crude oil. This was followed by the collapse of natural gas prices in 1987 and the stock market collapse of Black Monday on Oct. 19, 1987, when the markets fell by more than 20%. With extraordinarily low oil and natural gas prices combined with financial markets in disarray, the industry was starved of capital for many years to come.

Hope will happen: The oil and gas industry plays a fundamentally important role today in our domestic and world economies as well as providing energy and raw materials for people to live productive and meaningful lives with significantly improved living standards. Over the long run, this will continue to be true despite all the rhetoric regarding the elimination of fossil fuels. While the industry will continue to need to compete for capital and innovate technologically, I believe it can and should continue to play an important role in America and the world for decades to come.

What change like to see: The most important thing the industry can do is something that it is already doing but at a pace that needs to be accelerated and bought into by everyone. That's the recognition that it's not just about oil and gas but really about returns. We're a capital intensive industry and we compete for capital across all boundaries, and we must do that by providing competitive returns compared to other alternatives. While reserves and production are important, it is our ability to find and produce them using the best available technology showing a return that is competitive enough to attract the necessary capital.

DIANA HOFF

SENIOR VICE PRESIDENT, OPERATIONS, ANTERO RESOURCES CORP.

First job: My first role in the industry was an internship with ARCO Alaska in 1986 prior to my senior year at Marietta College. The price of oil dropped to $9, and I was concerned that I wouldn't have a first job, much less a career. I was fortunate to have a job offer from Chevron in New Orleans when I graduated in 1987, and I have been gainfully employed ever since.

Most impactful event: I believe the oil bust of the 1980s was the most impactful event of the past 40 years because it forced U.S. onshore operators to look at different rocks (coals, tight sandstones and shales) and to develop the technology of multistage hydraulic fracturing coupled with horizontal drilling that underpinned the unconventional boom, upended international energy markets and transformed the U.S. economy.

BILL VON GONTEN JR.

PRESIDENT, W.D. VON GONTEN & CO.

First job: I still remember my first job in 1988. Oil was $17/bbl, and I was so excited to graduate and apply my new skills to research and development. It was clear during interviews that the only jobs were for operating cementing units, and they meant "operating" the unit. As I have learned, our industry takes care of each other, and Pete Huddleston hired Dr. Von Gonten's son, and I started as a petroleum engineer. I owe my success to both my father and Pete Huddleston for training me not only in theory but how to use your instincts. My first job in this industry was exactly what I had imagined.

Most impactful event: I think the most impactful event was in 2012. I was in Jakarta working on a consulting assignment and received a message that the CEO of YPF wanted to talk to me. Because of the time difference, the call was set at 1 a.m. for me. The call was with Miguel Galluccio, and I still remember his question: "How fast can you get to Argentina?"

I immediately flew back to Houston, changed the clothes in my suitcase and headed to Argentina. That contact turned into a long-term relationship, which still remains today with his new company. Miguel has always treated me like we are part of his company. That is a special experience.

Hope will happen: My focus and drive for our industry in the next 10 years is to better understand physically how to optimize the production from unconventional reservoirs. I believe this will require many disciplines from engineering to chemistry to answer the question, "What should an unconventional reservoir produce."

As an engineer, I am not satisfied that single-digit oil recoveries and low gas recoveries are the best we can obtain. Think of it another way: Should we be satisfied leaving 90% of the oil in place as nonrecoverable? My belief is our training and skills have enabled us to make a significant enhancement in recoveries. It starts with understanding how molecules actually move through these reservoirs and better understanding the hydraulic fracturing system that we create.

What you would invent: I think too much like a reservoir engineer, and I am sure there should be a more significant invention for our industry. My answer is some sort of real-time 3-D imaging system that monitors the movement of hydrocarbons in our reservoirs. That way we would know exactly what area and thickness each well drains. Imagine the efficiency in developing a field.

JAMES K. WICKLUND

MANAGING DIRECTOR, ENERGY BANKING, STEPHENS INC.

40 years ago: I was negotiating then managing concession operations in Libya and Algeria.

Most impactful event: The most impactful moment was being asked what concession blocks we wanted in Libya for a $185 million operating program and having little clue as to which to choose. I was working for Sun Oil and had been there a few months when someone brought in a foot locker full of very old seismic sections and well logs. My boss told me to take a look at the information in the locker as we will need it soon, in the course of all my other duties.

I spent time perusing these old records. And then a few weeks before Christmas my boss'

boss called me and four other geoscientists and told us to pack up and come with him to Tripoli for a meeting with the national oil company (NOCs). So we went to Libya. We all moved into one apartment that the government had given us, since all the hotels were full. The gas stove leaked so my boss, who was a petroleum engineer, used a candle to stop the leak on the stove so he could heat up a kettle for tea. Of course, wax is soluble in natural gas and after a few moments the wax had melted and the stove blew. Not an auspicious beginning.

We had to move to a different apartment before meeting the next day. The next day we all marched into the national oil company's offices and met with the head of the company. In the middle of the room was an easel with a sheet over it. After a brief introduction he pulled the sheet off the easel and there was a map of the country with six blocks the government was giving us to explore. The deal was, if you didn't sign an exploration agreement, Sun would no longer be allowed to buy crude from Libya, one of its primary markets.

So my boss turned to me and said, "Are these the six blocks that we want?" I looked around at the other people at the table and said, "Why me?" He said, "You've had the footlocker full of the information. These other people are just here for show."

I panicked and looked at the map again. Two of the blocks were on the Cyreniaca Platform, a volcanic outcrop on the eastern side of the country. I said, "Well, we don't want those two blocks." The president of the NOC then asked where we would rather have them and I pointed to the middle of the Sirte Basin and said, "Somewhere in there."

So we signed an almost $200 million work commitment based on the selection of those six exploration blocks, packed up and went home. I became a bit jaded at that point believing that gray-haired PhDs were the people who did such things, not a brand new junior geophysicist who is still figuring out what he did for a living.

Hope will happen: What I hope happens in the oilfield business over the next few years is also what I think happens. Crude oil as a transportation fuel continues to get phased out as more EVs hit the road and the mileage of combustion engines improves. Battery technology will improve but diesel will continue to see more industrial use than gasoline so not all liquid transportation fuel leaves the mix.

The petrochemical and fertilizer industries will gain importance as more critical to the "digital industrialization" than many might realize. And regardless of fuel sources, using fossil fuels as lubricants will see increased demand even if whale oil is more "renewable."

Natural gas will prove to be the most critical base load fuel and not just a bridge fuel to some idyllic future. And while we have been stunningly good at reducing the emissions per Mcf produced over the past 10 years, political battles will still rage but the abundance and versatility of natural gas will keep it well in the mix for some time.

The industry will readily accept and implement the most leading edge technologies on how to run businesses, from block chain supply chains to paperless invoicing. Roughnecks will be a designation of long ago just like the loss of ring fingers. Artificial intelligence will continually improve our processes and profitability. Technical skills will remain very important but embrace many more disciplines than the engineers and geoscientists of the past.

The industry doesn't go away but becomes more focused on "energy" rather than any one specific course, and the skill sets of people in the industry will broaden. And our benefits to modern life will become increasingly better understood.

DOUG BROOKS

CHAIRMAN, OASIS PETROLEUM

40 years ago: My career began in my hometown of Casper, Wyo., with Marathon Oil in 1982 as a scout for the Rocky Mountain division. A couple of years later I was transferred into the land department. This early scouting work provided a very valuable broad view of the business from analyzing information about competitors' drilling, seismic and leasing efforts and analyzing specialty production and completion techniques.

That broad foundation proved invaluable to me throughout my career from understanding the fundamental basics to becoming aware of macro, business and technical trends. Little did I know that my business interests would quickly evolve from project-centric work into entrepreneurial business executive leadership by starting two resources oil and gas companies and then to focusing on transforming five previously troubled enterprises back to viability, sustainability and profitability.

My early viewpoint was extremely narrowly focused and perhaps simplistic. While OPEC was exerting its leverage early in my career, its influence often seemed to abate, but it always reestablished its influence, oftentimes placing the domestic producer in serious jeopardy. My early viewpoint was, "as goes OPEC, so goes the industry."

Most impactful event: Technical advancements were enabled by nearly limitless access to capital. Of course, technical advancements in horizontal drilling and complex completions are undoubtedly the most impactful "event(s)" of my career. Equally as impressive, the genius of large-scale joint ventures—mostly financed by foreign enterprises and public and private equity—provided nearly limitless financial resources to underwrite this massive science project.

This vast capital source financed the genius of the human spirit and creative minds. The result was commercialization of untapped source shales as reservoirs. Together, these

technical and financial advancements reshaped the world's balance of power, politics and provided multi-generations of future sustainable energy for our best social and commercial use.

Hope will happen: I am hopeful that industry will more clearly and proactively define and defend its benefits to our world. I am hopeful that the industry will continue to advance its history of technological advancements to further soften its impact on the environment. The oil and gas industry provides critical inputs to food growth and development of medicines; provides human comfort, quality of life and safety, plus provides rewarding careers, high paying jobs and pays taxes and fees to support important infrastructure like schools, hospitals, etc.

Our industry is often blamed for many social and environmental problems. We should proactively work to be viewed as part of the solution rather than the culprit.

GEOFF ROBERTS

PRESIDENT, ROBERTS ENERGY ADVISORS

40 years ago: Forty years ago I was at my first job in the industry, which was my first job out of college, working as a production engineer at Amoco Production Co. out of their Corpus Christi office. My viewpoint of the future on any given day was that happy hours started in just a few hours, so if I could just get the rod string design right on this new beam pump then I might get there before the rest of the office showed up. I literally never looked further ahead than the weekend.

Most impactful event: Clearly the crash of 1986, as it likely was for anyone in the industry then. Imagine the 2008 to 2009 housing crisis hitting at the same time as a worldwide pandemic, and then it lasts for 10 years. It changed my life and that of everyone in the industry forever. I remember telling anyone that would listen: "Any person or company that makes it through this is going to be set for life." It wasn't quite that easy, but it was still accurate.

Hope will happen: Recognition, respect, responsibility and stability. It would be beautiful if the world could recognize that oil and gas has to play a role in our energy future, at least for the next 20 to 30 years and probably much longer. Treat us fairly, give us a chance to continue the incredible improvements we've made in ESG. Accept us as a vital piece of the low-carbon future, whether as a bridge fuel or in a natural gas-focused economy.

What you would invent: I would invent a federal government that recognized that a comprehensive natural gas program could solve many of the country's financial and environmental problems. With local, regional and national support from legislators and regulators, an aggressive program to convert cars, trucks, buildings and factories to natural gas would dramatically reduce overall GHG emissions, ground and water pollution, and overall fuel costs. It would guarantee America's continued energy independence and allow us to save the planet, live full lives and still continue to work on alternative energy sources.

PS: The only true long-term energy solution is nuclear, but that's probably not relevant to this article.

TOM PETRIE

FOUNDER, PETRIE PARTNERS

First job: After getting out of the Army, I was hired as an oil analyst for a management firm in Boston that ran funds for the endowments of MIT, Dartmouth and the Colonial Mutual Funds. I wasn't a petroleum engineer, but I had had some engineering classes in my undergrad years. Then I went to New York for seven years with First Boston as an oil analyst.

Later I moved to Denver and co-founded Petrie Parkman, and we worked on many of the large mergers of the period and advised on consolidation within the industry.

Change you'd most like to see in the industry? I really think our country's greatest strength in oil and gas is also its greatest weakness. That is, it's too easy to overshoot on the enthusiasm when oil prices are high and to pull back when prices are low. So, what I'd like to make sure about is that we understand how to be more disciplined in capital allocation across the cycles going forward.

Most significant event: The advent of the shale revolution, which dramatically changed the energy picture of the U.S. and, indeed, the world. This has enabled the U.S. to exhibit a very different posture with regard to geopolitical events.

SCOTT REES

CHAIRMAN & CEO, NETHERLAND, SEWELL & ASSOCIATES

Most impactful event: Pinpointing one event would be tough. I am constantly amazed at the technological advances that allow us to drill deeper than ever imagined, or find ways to get more out of previously depleted resources, or make exciting new discoveries in remote areas of the world. Horizontal drilling and hydraulic fracturing are

great examples. Both have been around for most of my career, but the combination of those two technologies 20 years ago has completely changed the U.S. energy industry and reshaped the global landscape.

Also, I'm showing my age, but can't help noting the invention of "spreadsheets," which had a huge impact on all businesses. I certainly remember my first introduction to VisiCalc on the new and only Apple III computer at Exxon's Kingwood office; it was a game changer.

Hope will happen: My hope would be that there's more balance in discussions around renewable energy versus oil and gas. Transitioning to cleaner energy, and truly understanding what that is, is a complex, global challenge that I believe our industry can play an integral role in. This industry is nothing if not adaptive, as we're already starting to see with major steps from leaders in our industry. I would hope that the general public would gain a better understanding and appreciation of the contributions that oil and gas makes to their way of life, rather than regarding the industry as a villain.

Ann Fox

PRESIDENT & CEO, NINE ENERGY SERVICES

What drew you to the oil and gas industry, after your service in the Marines?

Since I grew up in Massachusetts my only experience with oil was that we had to change it in our cars every so often. When I got out of the Marine Corps my parents had retired to the countryside north of Houston. They left what was a small dairy town in New England for beef cattle. I wanted to be close to them.

A man named LE Simmons created a position for me at his firm, SCF Partners. He is a patriot and believed that we should find places for combat veterans upon their return home. I am forever grateful for that start in the industry.

How has the industry changed since you began?

The largest change in the industry has been the transition at our customer base. Our customers used to be valued primarily on production growth and that has all turned on its head now. Growth in production is no longer the primary focus for the U.S. E&P. When I first began, operators were rewarded for growing their production, versus today, they are focused on generating free cash flow, improving their balance sheets and returning cash to shareholders.

The other large change has been the tremendous improvement in efficiencies throughout the years through new D&C technology, which has fundamentally shifted down the cost to complete a lateral foot in NAM land allowing our U.S. customers to better compete with the International market.

What changes would set the industry up for even greater success during the next 20 years?

Technology innovation is going to be imperative moving forward. U.S. E&Ps and oilfield services companies must continue to innovate and become more efficient, driving down the cost to produce.

Additionally, the industry must focus on our environmental footprint. We have to lead these efforts so that we can drive clean and profitable growth instead of having those potential methods dictated to us. We can get better and must do so. It is critical that the fossil fuels industry gets cleaner and cheaper at the same time in order to help thwart climate change, ensure Americans have the ability for continued socioeconomic progression through strong U.S. economic growth and, of course, be ever conscious of protecting our energy independence to better guarantee our liberty and freedom against global powers that do not share our views.

What are threats to the industry's future success?

While energy has always been a cyclical business, we have been facing unprecedented uncertainty and volatility that is always a threat to the industry. In addition, the U.S. needs to have a very honest and comprehensive conversation about how best to power the nation in the near, medium and long term. If the dialogue remains distinct and separate between two groups; fossil fuels and alternative sources of energy, then America will suffer. We must create cooperation and collaboration to solve very complex issues that frankly have no easy answers.

MARK TESHOIAN

MANAGING PARTNER, KAYNE ANDERSON CAPITAL ADVISORS

First job: I started my career in the late '90s in the oil and gas group at Credit Suisse First Boston (now Credit Suisse) in New York City. At the time, the tech bubble was approaching its apex and energy was considered very out of favor. Oil was trading around $20/bbl, and natural gas was trading around $2/MMBtu.

Little did I know that the tech bubble was about to burst and energy was going to materially outperform the S&P 500 over the next 10-plus years. As Mark Twain once said, "History never repeats itself, but it does often rhyme." That statement feels very appropriate today as conditions in 2021 feel very similar to 1999.

Most impactful event: While it's hard to argue that the shale revolution has had the biggest impact on the industry over my career, I think that the energy transition movement will have a much greater (and uncertain) impact on the industry going forward.

Hope will happen: I'm strongly convinced the next 10 years will be an enormously profitable period for the oil and gas industry—especially E&P companies. Despite the impact of both COVID-19 and renewables on energy demand, the world will continue to use enormous amounts of fossil fuels for the foreseeable future. Given the capital scarcity in the sector, I suspect we will see durably higher oil and natural gas prices for the balance of this decade. Assuming operators remain disciplined with their capital budgets, E&P companies should generate very attractive returns for shareholders.

What change like to see: More alignment between executive pay and returns to shareholders. I think the CEO of every publicly traded company (energy or otherwise) should be required to invest a very material portion of their net worth into the stock of their com-

pany. Proper alignment between management and shareholders would ensure that executives are behaving like owners and not managers.

AL CARNRITE

PRESIDENT AND CEO, THE CARNRITE GROUP

Viewpoint of future career: I joined the industry just over 40 years ago and felt our industry was critical to improving the lives of everyone by providing the most affordable energy to the world. I personally felt there was no limit to the career I could have.

Most impactful event: If you would have told me 40 years ago we would unlock deep water and shales, I would have shaken my head. Our ability to drill deeper, horizontally and frac shales amazes me even today.

Hope will happen: We continue to provide the opportunity for a better quality of life by providing the cheapest energy to the planet, and we need to quit apologizing for our industry. Look beyond the John Kerrys where moths come out of his mouth when he speaks. Provide the cleanest, cheapest energy that meets the various local needs.

What change like to see: For an industry driven by technology breakthroughs, we are still so slow to adapt. Embrace the energy transition and lead.

HELIMA CROFT

MANAGING DIRECTOR AND GLOBAL HEAD OF COMMODITY STRATEGY, RBC CAPITAL MARKETS

First job: Forty years ago I was still an undergraduate in college. My first job that was related to the energy industry was at the Central Intelligence Agency in 2001. At the time, the Bush/Cheney administration was very focused on diversifying the sources of U.S. energy imports as well as preventing worldwide threats to oil supply.

My main country of coverage was Nigeria, which experienced a series of supply disruptions in the run up to the Iraq war in 2003 as armed militants in the Niger Delta sabotaged oil facilitates and kidnapped oil workers in an effort to secure payments from the government and international oil companies. I would later write a Financial Times op-ed about unrest in Nigeria's oil sector while I was a fellow at the Council on Foreign Relations.

Most impactful event: It is hard to pick the most impactful, but if I had to highlight a couple, I would include the tumultuous events of the Arab spring which pushed prices above $120 as Libyan production plummeted and multiple regimes fell, as well as the Sept. 14, 2019, cruise missile and drone strike on Saudi Arabia's Abqaiq facility, which temporarily took offline half of the country's oil output. I extensively covered both events for my bank as well as CNBC.

A personal career highlight for me was getting to conduct HRH Prince Abdualziz bin Salman's first public interview as Saudi Arabia's oil minister in September 2019 at the World Energy Congress in Abu Dhabi. I have known Prince Abdualziz for nearly 15 years, and he has been a very important mentor.

Hope will happen: I hope the industry is at the forefront of the effort to tackle climate change and ensure a just and equitable energy transition. My greatest hope is that the industry is able to attract the next generation of talented, diverse thought leaders.

JOHN JACOBI

PRESIDENT & CEO, JAVELIN ENERGY PARTNERS

40 years ago: Forty years ago I was working for Woolf & Magee Inc. I was responsible for the drilling contracts for our rigs. Best Job I ever had! I learned so much.

Most impactful event: The technology creations that unlocked the unlimited resources this great country has.

Hope will happen: We should all be better stewards of our investors/partners' money, not just the next 10 years but always. You will always have a job in this fantastic business if you do that! As you have heard me state many times, "Your goal should be having more money at the end of the month than you do at the beginning of the month!"

What you would invent: Better filter systems for our emissions.

RYAN KEYS

PRESIDENT AND CO-FOUNDER, TRIPLE CROWN RESOURCES

First job: It was 2005. The future was offshore and international, and that was exciting. The prospects for career growth were scattered across the world. I was an engineer at Schlumberger at the time, so this all seemed like a foregone conclusion. Then the great repatriation of E&P capital to North American unconventionals happened.

Susan Cunningham

INDUSTRY CONSULTANT, FORMER EVP, NOBLE ENERGY CORP.

How has the industry changed since you began?

I started in this industry straight out of university in the early 1980s, during a short window when there was a lot of hiring. This was completely fortuitous. In the 40 years I have been in the industry, I have seen two large cycles where prices changed by about 50% (inflation adjusted) over 10 to 15 year time periods. Of course, that included one-year volatility within these cycles with greater price changes, the greatest being $120/bbl in 2008 to 2009.

During my career there have been about six one-year swings of $40 to $50/bbl, so I have seen and participated in layoffs and rapid hiring, industry consolidation and newcos. During this time, the highs and the lows have trended higher, illustrating the increase in global population and overall demand. Almost every time prices swing wildly up, a global recession inevitably sets in, resulting in a rapid decline.

A large part of my career has been focused on exploration. Finding and developing new energy supplies for the globe, improving lives and contributing to the five- to six-year rise in life expectancy over this time period. It has been a very rewarding experience.

Of course, the conversation about energy and the oil and gas industry has changed over this time frame, as concerns over man's impact on the environment has evolved into concerns on CO_2 emissions and the impact of fossil fuels. As we all know, this concern by society has impacted access to capital and shareholders for the industry and the beginning of real competition for energy from other sources. Government regulations and tax incentives are designed to increase the rate of change.

What changes would set the industry up for even greater success in the next 20 years?

The oil and gas industry is shifting from a pure commodity-based business to a combined commodity and energy product differentiation business. That is a very significant shift. This also means that the skills needed by employers in this space are shifting significantly. We are no longer an oil and gas industry. We are part of an energy industry. How leaders respond to these changes will determine their company's long-term success.

Technology changes and the impact of social media have fundamentally changed how we do our business. Companies that do not take it seriously will lose out. Leaders that really listen to society, communities, shareholders and employees have a better chance at greater success in the next 20 years.

Clearly, consolidation needs to continue to take place. Reducing emissions and overall impact to the environment needs to be taken seriously and become a priority. Leaders that do more listening than talking, are transparent, open to change and inspire their employees and shareholders, will change their business plans and culture to attract and retain great people while evolving into the energy company that is appropriate for them.

There are and will be three buckets: those that plan to shift away from oil and gas over time; those that are pure oil and gas companies; and those that plan to be a combination. Playing the long game will be more important than ever. Really adding value to shareholders, earning their trust will be crucial.

In the past we really did not need to explain ourselves or listen very hard to what our communities were saying. We were needed and important as there were no alternatives. We will still impact economies, global politics and people's lives. However, that impact is starting to shrink.

We are no longer the only game in town. We need to grow in our understanding of what it takes to thrive in a competitive energy industry—not just a competitive oil and gas commodity business. Once we really understand that we need to provide a product that is valued by society and communities, that employees and colleagues are proud of producing, and that shareholders want to invest in, we will thrive!

What are the threats to the industry's future success?

I think that the biggest threat to our future success is us. This is an opportunity to change, to transform. And we must transform to thrive. I look at it this way: Our thinking impacts actions we take to get specific results. If we are not getting the results we want, we must change our thinking. Otherwise, our actions will not change enough to get the outcomes we want.

We can only change our thinking by truly listening to others and challenging "what we know to be true." If we talk but don't really believe what we say, others will know we are insincere. We will not be trusted. We will not be successful for long. Of course, this also means that we need to continue to adapt and change what we each do. As our thinking evolves, our skills also need to continuously evolve. This is not easy, and it takes time.

It is really hard to change our thinking. I know I have gone through the journey of pride in what I do, to denial that a change is needed, to anger that some others did not appreciate what we do. But I do not like being in a place of anger. There is nothing good in that. Anger only tears down possibilities. Denial only puts off needed change. Neither are satisfying. I am now excited again about what is possible.

> "Finding and developing new energy supplies for the globe, improving lives and contributing to the five- to six-year rise in life expectancy over this time period. It has been a very rewarding experience."

The opportunity is to be part of and witness to significant change. Of course there are huge challenges. Change does not happen easily or overnight. There is a lot of "pollyanna thinking" out there as we all know. Let's be a positive part of creating the conversation. Proactive and not defensive. The hardest part for me, as someone who knows how this industry works and how hardworking, fantastic and inspiring the people are who work within it, is to have room to be proud of it as well as listening to those who oppose it. To see all it can be.

Find and develop affordable and profitable energy that continues to improve lives. That has truly minimal impact on the environment. That people want to pay for, because it also has very low emissions. Consider combining all types of energy available in the areas where you work to achieve this. What are people willing to pay for in a competitive energy industry? I don't think most of us know the answers yet. It is evolving. However, I am confident that the oil and gas companies within the energy industry are on their way to figuring this out.

Great for the U.S. economy, bad for my dreams of a lifetime of expat gigs in far-flung corners of the world.

Most impactful event: It's happening right now: the energy transition and it will affect everyone on the planet. The cacophony of angsty debate from all sides is creating an existential crisis and a lot of confusion. Are we oil and gas companies or energy companies? Will there be a price on carbon in the U.S.? Where will demand for hydrocarbons be over the next few decades? We are seeing narratives being rewritten, markets evolving rapidly and volatility at an all-time high.

Hope will happen: The irony of this energy transition is that it's largely being driven by the private sector, at least in the U.S. The firms that demonstrate a willingness to evolve are being rewarded with access to capital and cheaper capital, and their valuations are better. We are beginning to see premiums for responsibly sourced hydrocarbons, and I hope that evolves to the point where the world sees American hydrocarbons as the cleanest, most sustainable on the planet. As long as firms are rewarded, then the evolution will come. It's the carrot versus stick approach, but it will only be successful if we choose to view this as an opportunity and not a risk.

What change like to see: The world still needs hydrocarbons, so the firms that evolve will be wildly successful. Our reputation has taken a big hit in the last decade. A lot of the current narrative and criticism is egregious bullshit, but a lot of it is true and well-deserved. The industry can fight the prevailing narrative with zero routine flaring, driving down methane emissions to a negligible volume, aligning every stakeholder in every project we undertake, being open-minded about other forms of energy and delivering consistent cash-on-cash returns. We can be better. Collectively, we must be better.

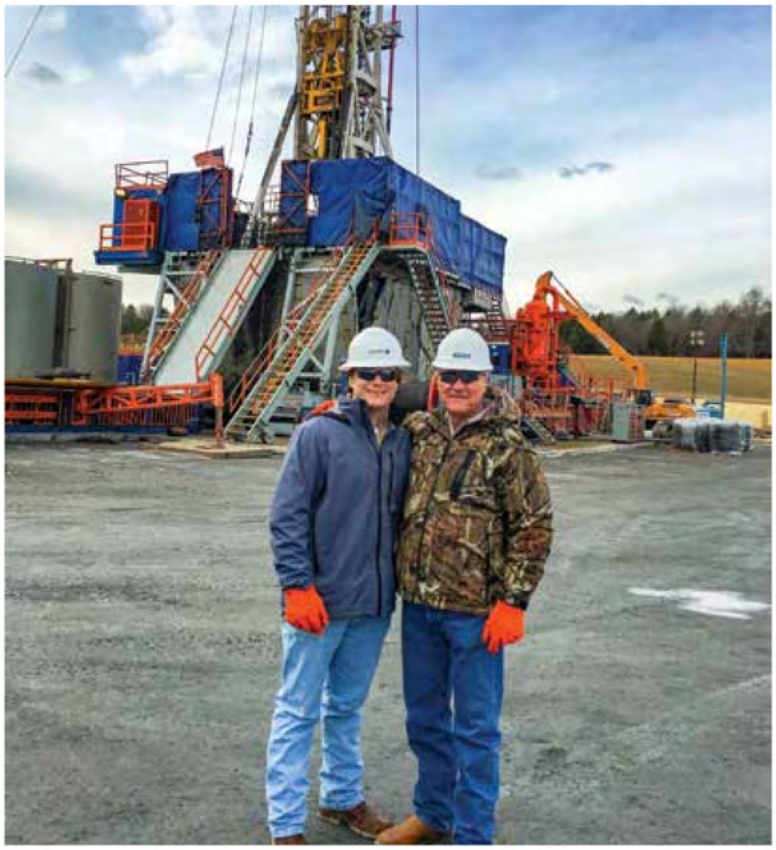
TREVOR REES-JONES

FOUNDER & CEO, CHIEF OIL & GAS

40 years ago: Forty years ago I was a lawyer and measurable. I was doing oil and gas bankruptcy work representing creditors and found myself fascinated by the oil and gas business and drilling wells, not so much thinking about the drafting of documents. So, in January 1984, I left a new partnership at the law firm and launched out on my own as a small independent putting drilling deals together. That was a whole lot of fun for me, though success eluded me for a great many years.

Most impactful event: I would have to believe the most impactful event in the industry over the past 40 years was the development of the shale revolution, which revolutionized a 150-year-old smokestack type industry. I was fortunate to be involved very early following George Mitchell's footsteps in the Barnett Shale. We (Chief Oil & Gas) actually drilled our first Barnett Shale well in 1997.

Hope will happen: My hope for the next 10 years would be that those who use our product stop bitching so much about the bad effects and thank us for taking the huge risks we do to bring them the oil and gas that they use. But there's no chance of that happening, only a huge lack of gratitude. If they're that worried about it, they should just stop using the product. That's a simple solution, but they won't do that either.



Chief Oil & Gas CEO Trevor Rees-Jones and his son, David Rees-Jones, in front of a drilling rig in the Marcellus Shale.

BILLY QUINN

MANAGING PARTNER, PEARL ENERGY INVESTMENTS

Viewpoint of future career: I started investing in oil and gas almost 30 years ago. It's been a fun but wild ride. I always thought fundamentals should drive the business, and it appears that it is finally happening.

Most impactful event: There are so many. From the 1998 oil price crash to 9/11 to the 2008 financial crisis … It seems like there is a big, impactful dislocation every few years. Nowadays, it's the ESG/energy transition movement. But I would have to say the collapse of Enron and the subsequent

fallout and the huge advancements in drilling and completion technologies are the two "events" that have had the most impact over the long term.

Hope will happen: Lasting financial discipline and commodity price stability are long overdue.

What change like to see: Affordable and widespread carbon capture and storage. If we had it, the world would embrace oil and gas as the cheapest forms of energy.

TIM MURRAY

MANAGING PARTNER, BAYOU CITY CAPITAL ADVISORS

40 years ago: I was a senior reservoir engineer for ARCO in charge of re-developing an offshore oilfield in Eugene Island Block 175. With oil prices recovered to the mid-$30/bbl range from the 1970s lows, we thought we were in for good times for many years to come. I had decided, however, that the ride would be difficult and volatile, so I sought to diversify my career in the financial side of the business with my first step of pursuing an MBA.

Most impactful event: There were many impactful events in the industry during my career, but two I believe were game changers. The first was the evolution of the commodity hedge markets to provide longer-dated crude oil and natural gas hedges. The option to "insure" against volatility was a game changer and helped many lenders and companies survive in down cycles.

The impactful second event was the industry pursuit of unconventional resource development. While a boon for the industry was self-evident, the progression in unconventional valuation was to become the dark side of this development. Investors and capital providers extrapolated robust valuations based on acreage held and type curve projections. Cash flow and return on investment were secondary to drillable locations. Petroleum engineers and geoscientists were supplanted by young spreadsheet jockeys in high-rise offices who had never seen an oilfield. Operators and capital providers alike were burned by these lofty valuations, and we're still recovering from the fallout of this valuation bubble today.

Hope will happen: Over the next ten years my hope is that the industry focuses on a rebuttal of the climate change hoax that has been pushed by politicians and the mainstream media. The industry sat silent while this nonsense was slowly and purposefully woven into our everyday lives. The fundamental claim that the generation of CO_2, a colorless, odorless gas necessary for life on our planet made fossil fuels "dirty" should have been nipped in the bud. □