Global Insights – Disruptive Changes Transforming the Energy Landscape

How these changes are creating a new world order in a digital era.

In the past decade, we have witnessed major ebbs and flows in the ever-changing energy marketplace. A plethora of factors, ranging from geopolitical shifts to technological advances, have impacted the industry and continue to shape the global playing field. This has raised many questions, such as how have changes in technology facilitated the U.S.’s ascension to one of the largest producers of oil and gas globally? Can they further strengthen this lead as price-maker? How is the industry managing growing risks of cybersecurity and embracing digitization to drive future performance?

Citi has brought together several of the bank’s top energy experts: Ed Morse, Stephen Trauber and Jim Reilly, to identify and discuss the disruptive changes that are now transforming the energy industry. Peter Langshaw, Global Energy & Latin America Sector Head, Treasury and Trade Solutions, Citi, interviewed the Citi experts to discuss these changes and get their insights on what lies ahead in the energy landscape.

When the unconventional becomes conventional

Peter Langshaw
Global Energy & Latin America Sector Head, Treasury and Trade Solutions, Citi

Peter: What are the disruptive changes transforming the energy industry?

Ed Morse: Let’s start by saying that nearly all of today’s exploration environments have become conventional. In the past, we considered many of them “unconventional!” because you simply couldn’t do anything with those sources. Case in point, in 1990, there was only one vessel that could explore minerals in deep water, which basically is anywhere from a mile to five miles deep. Flip to 2008 and there were 250 of those vessels operating in deep water. So, you can see how technology disruption has brought down the price of exploration.

Stephen Trauber: The shale revolution has been driven by improved fracking and horizontal drilling technologies, which have allowed the U.S. to develop and produce both oil and gas at a cost that nobody thought was possible. We have always known there was a substantial amount of oil and gas in shale, but it wasn’t until fracking and horizontal drilling technologies improved that the U.S. could extract it in a sufficiently cost-effective manner.

1 Unconventional is defined as shale, oil sands and deep water.
Jim Reilly: I think the most impactful change globally has been a function of unconventional oil development. For example, U.S. shale oil production has gone from zero barrels ten years ago to approximately six million barrels a day today. In terms of gas production, the state of Pennsylvania, U.S., which has seen exponential increases due to unconventional production is now the third largest gas producer in the world. Additionally, production is expected to grow by another 50 to 100 percent with reserves lasting close to 85 years. When you add in West Texas, which could eventually produce as much gas as Pennsylvania, it’s clear that the U.S. will dominate the marketplace for years to come.

The U.S. as an undisputed leader of the global energy market

Peter: How are these disruptive changes impacting the global landscape?

Ed Morse: The U.S. has become the number one producer of oil in the world, and with continued growth over the next five years, is expected to outpace both Russia and Saudi Arabia. Due to the current high prices and market responsiveness, Citi expects Canada, the U.S. and Brazil to increase production by as much as two and a half million barrels a day. The unique thing about the U.S. is that it has scores of companies that are extremely competitive, and since there are no government-owned companies and no government policies to reduce production, the market is responsive to economic factors alone.

A good example of how the U.S. is dominating the industry can be found in its oil field and gas field services. This gives these U.S. companies a global edge, because of their market dominance.

Further evidence of the disruptive force of the U.S. is the fact that they are the largest buyer and seller of oil, with 12 percent of total imports and exports, and this trend is certain to continue. Citi anticipates that the U.S. will grow to approximately 20 percent of all oil purchases and sales globally, which means it will be the pricing hub for everything related to crude oil, natural gas derived products and petroleum products from a refinery.

Three years from now, the U.S. will likely be exporting close to nine billion cubic feet (BCF) a day into global Liquefied Natural Gas (LNG) markets and maybe five BCF a day into Mexico, becoming among the largest gas exporting countries in the world. In terms of the LNG market, it will likely be one of three giants. The U.S. will likely be equal to Qatar as an LNG exporter and possibly bigger, with Russia playing catch up. This is largely due to the fact that the U.S. government, by law, cannot restrict the destination of exports. Because it is market driven, the U.S. has become the price setter for natural gas globally, which keeps prices low or lower than they might otherwise be on a global basis.

Jim Reilly: I think by far the most exciting landscape in the business today remains the U.S. resource plays. Much of that excitement in the last few years has been focused on the West Texas Permian Basin and that still is probably the number one play. This rapid growth is causing some infrastructure challenges and rising prices. We are also seeing a pickup in other attractive Basins including resurgence in the Eagle Ford Basin in South Texas. Bottom line, the U.S. remains the number one geography in terms of immediate and future promise.

Peter: Aside from the U.S., what are the other key geographies to watch in the upcoming years?

Ed Morse: The Argentina Shale structure looks a lot like the Permian basin. One part of the Permian basin in West Texas is the second largest continuous reservoir of oil ever discovered next to the Ghawar field in Saudi Arabia. Argentina looks like it has a similar structure, and we expect the Permian to be producing five or six million barrels a day easily by the early years of the next decade. It’s already producing more than three million a day. So, this is clearly not a flash in the pan.

Jim Reilly: Beyond the U.S., there’s growing interest in Latin America. Following the energy reform in Mexico, we are seeing the beginnings of a very large, long-term play in the region. Brazil is maybe the number one offshore play in the world today. It is up and running and its results have been so buoyant that it’s attracted more and more capital after the government’s response to the downturn and other problems in their energy program. I think Brazil is probably the most notable large scale play out there.

As Ed mentioned, we are seeing a lot of money going into Argentina because of the big unconventional play there. In addition, there are some other big projects going on in Kazakhstan and the Eastern Mediterranean and East Africa, as well.

Then interestingly, places such as Colombia are becoming more attractive onshore with higher prices and there is promise in the offshore as well. Finally, Guyana is already in the first phase of development, and promises to be the center point of what we expect to be a burgeoning exploratory effort that will go on in region and neighboring countries.

New industry priorities

Peter: Given these changes, what are the shifting priorities of companies within the energy industry?

Ed Morse: One priority is getting companies to flourish and generate free cash flow that delivers a return to shareholders. There had been significant doubts as to whether shale oil was just a Ponzi scheme or whether it could turn out to be a viable part of an investible product. But it has turned out that skeptics are wrong.
Also, diversification is a priority, as specialization has become riskier than it used to be. It's better to be diversified in more than one sector. Some companies can do shale and deep water. Some companies can do shale and oil sands. It's risky to be in shale alone anymore, so that's one big change and one that has become a priority for companies.

**Stephen Trauber:** I think there are a couple of things, and one is probably more of domestic pace, which is the Master Limited Partnership (MLP) landscape and whether MLPs are going to be an existing asset class going forward. Right now, there's a strong sense that we are going through a major restructuring of the MLP landscape, where most companies are simplifying their General Partner–Limited Partner (GP-LP) structure. Ultimately we'll probably move toward a C Corp structure for many of these MLPs. We are seeing a lot of this activity ongoing. For example, recently CVR announced that their C Corp was going to buy out the MLP effectively, and give the MLP shareholders C Corp shares. We are likely moving toward a much smaller MLP landscape and a much larger midstream C Corp landscape.

**Jim Reilly:** I think that the priorities are probably similar today to what they were six months ago when prices were lower and folks were thinking of oil in the 50s. Today we're thinking about oil in the 60s and maybe if we're lucky, the 70s. The main priority is to first figure out how to invest more efficiently; second would be to reduce leverage; and third to return capital.

**Driving performance in the future**

**Peter:** What are some of the emerging opportunities to drive performance?

**Stephen Trauber:** Digitization is viewed across the industry as a promising avenue for driving greater efficiency. The key is to harness the massive amounts of information available, manage it effectively, and use it to make better and faster decisions. Evolving technologies, such as AI and automation are presenting some real opportunities in this space.

**Ed Morse:** As we've discussed, shale is a resource of growing importance. Many of the majors and super majors, who weren't well equipped to deal with shale, are making this a significant part of their portfolios. Going forward, major energy companies combined are targeting over two million barrels a day of production in West Texas by the middle of the next decade.

As for deep water, areas that already have infrastructure in place, such as the U.S. Gulf Coast, are seeing a real cost break with new projects. Nearly all projects that were postponed in 2014 for the Gulf, then restarted post 2014, are coming in at less than 50 percent of what they were originally scheduled.

**Peter:** What lies ahead with regard to M&A activity in the industry?

**Stephen Trauber:** At the moment, M&A activity levels across the industry - from upstream, midstream and downstream - are relatively stagnant. Part of this is because we are just now coming out of a deep decline in oil prices and therefore profitability and valuations are less than robust. Also, a good portion of M&A is typically done as a means to expedite growth within one's business plan and today many of the upstream companies have a lot of internal growth that can be achieved simply through developing more of their existing acreage.

With the growth in shale extraction around the world, a number of Middle East companies have been looking at opportunities in the U.S. as a means of gaining shale technology and expertise, which they hope to import into their own regions. There are an increasing number of potential sellers or merger partners, and I don't just mean in the upstream, I mean in the midstream and energy services as well. So I do think that we are setting ourselves up for what I think will be relatively robust activity levels in M&A over the next two to three years.

**Key risks faced by businesses**

**Peter:** What are some of the other key concerns that C-level seniors are currently grappling with?

**Stephen Trauber:** One of the biggest concerns we're hearing from leading energy industry executives is the persistent threat to cyber security. There has been a dramatic uptick over the last two years in cyber threats, which holds the very real potential for negative corporate and reputational impacts if not handled correctly. This has spurred a strong interest in Enterprise Security Risk Management solutions.

**Jim Reilly:** Another topic that has grown in importance these past few years is concerns over environmental impact. Many energy companies are coming under greater scrutiny by environmental organizations and groups representing indigenous peoples in certain parts of the world. Financial institutions have also come under increased pressure from shareholders as well as environmental groups over who they provide capital to. This will continue to be an area of focus for senior management throughout the industry.

**Jim Reilly:** In the upstream segment, I expect to see a continuing high level of asset acquisitions. However, in the near-term, upstream corporate acquisitions will probably remain at low levels because such activity increases complexity, which runs counter to what companies are trying to do today in terms of narrowing their asset position, improving the efficiency of business practices, etc. Corporate consolidations in other segments, though, have already happened and are likely to continue.
Peter: What is the industry outlook for the next five years?

Ed Morse: On the oil side, the Saudis will continue to break away, working only with the rest of OPEC, because they do not have enough market clout to put a floor under prices and to prevent a ceiling. In fact, the shale revolution, together with deep water and oil sands, has really deprived them of pricing power. However, they don't always see it that way. Since 2016, the Saudis have embarked on a path to raise global prices and to, in the short run, raise their income. But they can't do it on their own because OPEC on its own doesn't have the market power that it used to.

OPEC production capacity has not grown over the last 40 years, despite the world's oil market size doubling since then. So, they represent a significantly smaller percentage of the market. The principal way they are now able to exercise market power is through an alliance with Russia, the second largest oil producing country. If Saudi Arabia wanted to, they could open the taps and become second, but the U.S. will by the end of this year or sometime next year be the number one crude oil producer. The U.S. will be adding production every year for the next five years at least, outpacing the growth of both Russia and Saudi Arabia.

Saudi Arabia has lost market share. The Saudis will likely need Russia to help them to cut production in a meaningful enough way to put a floor under prices. But this is an experiment and we're only in chapter two of a longer book on the evolution of oil in the age of shale.

Stephen Trauber: I expect that oil prices probably will be much more cyclical and volatile than we have seen historically because now you have a big player, namely the U.S. that is unregulated from the perspective of being able to produce or not produce. Historically, OPEC has been able to control oil prices. That's going to be much more difficult now with the U.S. being a major producer of oil and gas.

As U.S. production increases and as existing global offshore projects come online with the major oil companies, we can expect to see greater swings in supply and demand. I personally believe we're going to see the major companies getting back to developing big projects. They have not developed a lot of offshore opportunities because they haven't had oil prices to justify it. I also believe we're going to see a major consolidation amongst the independents on a global basis. For the time being, the U.S. players will probably stay focused on the U.S. and the international players will stay focused on the international. That's largely being driven more by the public markets.

Jim Reilly: When you look at the outlook for natural gas prices in the coming years, we see little change. The reason prices are flat is that there is a significant oversupply of natural gas on the market today. Moreover, because gas is produced in conjunction with oil exploration, the increased production of crude has kept gas supplies robust despite no significant uptick in demand. It will probably take several years for demand to catch up to supply.

The prevailing opinion is that current oil prices are higher than expected due to geopolitical issues, such as conflicts in Libya, sanctions on Iran, the collapse of Venezuelan production, and efforts by OPEC and Russia to curtail supply. It is widely believed that once these issues are resolved there will be a boost in supply due to today's higher prices. Longer-term projections suggest prices settling somewhere in the range of $55 to $75 per barrel.

Conclusion

Unconventional energy development is transforming the energy landscape worldwide. Advances in technology and horizontal drilling techniques have significantly lowered costs as the increase in unconventional gas and oil production has taken everyone by surprise.

America's abundant and low-cost unconventional gas and oil resources, together with their head-start in commercializing unconventional resources, has resulted in the USA becoming the largest producer of both oil and gas globally. The USA has now overtaken the perennial powers of Saudi Arabia and Russia in regards to oil and gas, respectively, and is likely to dominate the energy sector for years to come, thereby providing the largest single opportunity for the USA to improve the trajectory of their economy.

A new world order has therefore been created; including creating geopolitical advantages for the USA and helping restore their global competitiveness.

As a whole, countries with unconventional energy development are likely to continue to take market share; while traditional OPEC producers and Russia attempt to stem the loss of market share for limited periods of time.

The disruptive changes, driven by innovation and digitization, have been the catalyst for the industry's transformation, making the unconventional conventional.

Finally, further innovation and digitization across the industry will continue to determine future economic performance. With it, increased risks such as cybersecurity and geopolitical pressures are likely to prevail, with the market becoming more cyclical and volatile than we have seen historically.