

Reflections on Oil Industry Dynamics at Play Today When Supply Drove Price and Demand vs When Demand Drove Supply and Price a Conversation Edgar Peláez, Avanssara LLC

Crude oil has been a staple strategic component of our industrial, commercial, and residential environments. Its role has evolved over 150 plus years of use in modern history. Reflecting on the forces at play in the current crisis, let us review the context of recent disruptive reference points:

1960 – The creation of OPEC: Iran, Iraq, Saudi Arabia, and Venezuela formed OPEC with the objective of coordinating its members on policy, price, supply, and a fair return on oil industry investments. Membership and production grew overtime with oil stable around \$3 per barrel.

1973 – Oil Embargo: Arab oil exporters retaliated against supporters of Israel in the Yom Kippur War using oil as weapon. The embargo increased the oil price by 400% from ~\$3 to ~\$12 per barrel; the world lived its first oil crisis.

1986 – Oil price crash: The embargo left oil supply security scars on industrial nations and set a drive to find alternative oil sources outside OPEC. The outcome was underestimated by OPEC, and occurred at higher oil prices from 1973 to the mid 1980's. Oil finds in the North Sea, México, the Gulf of Mexico, novel technologies, fuel consumption efficiencies in transportation and generation, plus a society focused on energy conservation curved demand growth. The new demand profile and the growth of non-OPEC production raised OPEC's concerns on share and led to the 1986 oil price crash from ~\$30 to \$10 per barrel, a 65% drop.

1998 – Oil price crash: A gradual inventory buildup from expansionary production in and outside OPEC, increasing oil exports outside of OPEC control, plus an Asian economic slowdown led by Japan, drove price down in 1998 from ~\$25 to ~12 per barrel, a 50% drop.

2016 – Oil price crash: A steady and successful growth of unconventional oil from shale over 5-6 years was met with a less than expected global economic growth and demand. OPEC took a strong stand against curtailing production and the price tumbled from ~\$100 to ~ \$40 per barrel, a 60% drop. The nascent shale oil production industry was challenged. OPEC + appears.

2020 – Oil demand/price crash: The U.S. continued development of unconventional shale, became the world's largest oil producer. The U.S. allowed oil exports deviating from a longstanding policy. By 2019, OPEC+ had friction from U.S. and non-OPEC production increase. Early in 2020 COVID 19 appears and sets a global shutdown forcing a sharp demand drop. As OPEC and Saudi Arabia attempt to respond with production cuts to counter the demand drop, Russia disagrees. Saudi Arabia responds with an immediate production increase and a unilateral discount triggering an all-out price war. A "situational cocktail" of forced demand shutdown, deliberate supply increase and price reduction launched the current oil crisis.

It is generally agreed that control of the oil supply is the driving lever to regulate price and in turn demand. The intended outcome, a fair return for producers, and more specifically for exporters.

COVID-19 will go down in history as what upended demand to its lowest level in just a few weeks and forced down supply and price.





Structural Fundamentals and Drivers:

Historical: OPEC's consolidation as the exporter's control body sought to coordinate and manage the oil supply market among other objectives. This generally worked well for the first decade. Prices remained stable and low, the demand and supply balanced with no disruptions. All changed in 1973, a politically driven action by middle east OPEC nations overestimated their control on the supply and fractured the market stability. The non-OPEC world realized their weak supply status and vulnerability to OPEC. Two significant outcomes, the world set out to curve demand and non-OPEC nations to find alternative oil.

In 1960, 39% of the world oil production came from OPEC. At the time of the 1973 embargo, OPEC's share was 53%. The quest for non-OPEC oil post 1973 delivered tangible results and OPEC curved their production to protect price. OPEC, led by Saudi Arabia, became swing producers and non-OPEC oil expanded at capacity capitalizing on the economic benefit. In 1986 the supply glut combined with reduced demand growth crashed the price. OPEC's share of production retracted to 31%. It was evident that OPEC did not have the market leverage it once thought it had. OPEC and non-OPEC worlds had to learn to live together.

OPEC production is set by the countries and often below their capacity; Non-OPEC oil is generally produced at capacity if supported by price; production retracts when price fails to deliver a return. Generally, OPEC oil has lower production costs and sustains low price environments longer. Non-OPEC oil has a higher private ownership element, generally a higher cost, and higher sensitivity to price. OPEC sets productions levels to impact price, whereas price sets the level of non-OPEC production.

From 1986 to 2000, demand grew modestly with prices stable at a lower bandwidth than before, except for the short-term spike during the 1990 Iraqi invasion of Kuwait. This market kept nonOPEC oil at stable levels and OPEC supplied the additional demand from its controlled resources. The late 1990's oil price crash was triggered by a slowdown of the world economy that started in Asia, led by Japan. This disrupted the oil market at a point when OPEC had a share of 42%.

The oil markets enjoyed a healthy run from 2000 to 2016. Prices steadily increased and the world economy supported increased demand. Except for the 2008 recession, led by the U.S. financial crisis, the price trend was up. OPEC share dropped to 37% in its role as swing producer to support price. Non-OPEC share reached 63% in 2016 with the nascent and strong presence of the U.S. shale and increases from several non-OPEC nations. Non-OPEC production increases and a softening of the world economic growth resulted in the 2016 crash. OPEC responded with cuts and the market drove non-OPEC supply reduction.

OPEC+ appeared during the 2016 crash adding non-OPEC nations to a production agreement, an enhanced market swing producer. Production from shale was a relevant factor in the market dynamics and decisions of 2016. The OPEC+ response was proof that U.S. shale production would be part of the supply equation at a lower price bandwidth than originally thought. This oil crisis was a test for U.S. shale; U.S. shale won. While OPEC production generally has lower operational cost, the fiscal price needed by OPEC nations to balance national budgets keeps them from executing a sustainable low-price market.

The oil market recovery since 2016 sustained prices with the OPEC+ production agreement. By late 2019, OPEC+ began to exhibit stress signs. U.S. shale production continued to rise along with other non-OPEC+ production. Russia and Saudi Arabia, as de-facto leaders of OPEC+, began to have differences of opinion, primarily on how to manage and not subsidize U.S. shale with price.





Technical: Technically and operationally OPEC members have ample reserves and the ability to dial up or down production with greater flexibility that non-OPEC nations. This operational flexibility is supported by a governance framework where NOCs (National Oil Companies) execute policies from governments and are not pressured by market driven shareholders. Ample reserves and highly productive fields adapt better to operational changes in production.

On the other side is non-OPEC production which generally produces at operational and economic capacity maximizing business returns. Non-OPEC production has reservoir challenges in more mature and marginal fields and are owned and managed mostly by private enterprises, including fields in partnership with NOCs or from licenses granted by government agencies. Private stakeholders pursue maximum returns and typically are absent from production agreements.

OPEC nations typically enjoy higher operational flexibility to increase or decrease production with less impact on the integrity of reservoirs. Additionally, they respond to decisions on production that come from a single authority acting on internal policy decisions and not only responding to market drivers.

Non-OPEC nations have fragmented and mostly private control on the production business. Their resources have larger technical challenges and are more sensitive to changes in output volumes. Non-OPEC production has higher impact potential from increases or reductions at will. As a relevant driver, non-OPEC production responds to market forces and demands from private business models where productivity is to be maximized to reach the highest financial result. Without a framework limiting private business output, non-OPEC oil will produce at capacity for a price point and react immediately to changes. **Political:** Oil is part of the world's economic web with a relevant place in its supply chain. The perception of its role has evolved over time. In the 20th century we talked about "peak oil". Oil resources were deemed to be finite and reaching a peak would drive economic adjustments and increasing prices.

The sentiment has moved towards a carbon free world. Industry is delivering higher fuel efficiency, renewables, electric vehicle transportation and natural gas is virtually replacing oil liquids as fuel. On the supply side, increased oil reserves from shale oil plus improved technologies to process abundant heavy crude. These elements shifted discussions to "peak demand".

Given that the recovery factor for discovered oil averages 30% - 35% globally, one can make the case that the combination of technologies to improve recovery of oil in place, higher efficiency of the use of oil, plus advances in alternative fuels for transportation or energy allow scenarios where there will not be an end to oil supply but rather the end of its demand. Some oil will become stranded reserves.

Given these dynamics, some argue that price is managed in part to extend the life of oil liquids and delay the economic viability of alternatives. Balancing oil in the energy mix may have been a factor when defining strategy and policy within OPEC, however, the strategy has been shifting to "energy transition". "Transition" is an acceptance that the model is "peak demand" and the need for oil nations to develop alternate industry and economic models to reduce reliance on oil as the source of wealth and adopt transition economies.

The political elements to transition from oil in a "peak demand" model are different for countries that rely on oil revenue versus companies deriving economic benefits from oil.





Disruptor: The 2016 oil price crisis consolidated the U.S. shale as a "here to stay" disruptor to the oil supply equation. For the last 15 years, oil from shale quietly and without much fanfare gained ground as a viable producer of hydrocarbons. In 2016, its size was a relevant and important driver of the oil price crash.

The growth of shale occurred hidden in plain sight and largely underestimated by most of the industry. Led my medium to small independents, its growth foundation occurred without the participation of the majors. Its volumes were not deemed as relevant for guite some time. Additionally, the cost of producing from shale was initially higher than conventional oil and not seen as a solid and relevant industry trend. By the time oil from shale started adding multimillion volumes in U.S. production and the export ban was lifted, U.S. shale had already grown to be a sizable industry and earned its place as a relevant player. By the end of 2019, oil from shale comprised close to 75% of the U.S. oil production with a volume close to Saudi Arabia's production.

Shale production returned to the U.S. the role of top global oil producer; a role lost decades ago. In addition, it provided a non-OPEC check point to balance production. The 2016 oil price crisis, led by shale oil on the supply side, and the recovery from it since, changed the industry.

Production from shale became the new disruptor to the supply equation. The crisis was expected to negatively impact production from shale as viewed by OPEC. Shale passed the test and won. The recovery was at a lower price range. Shale oil producers adapted to it and grew. Production from shale almost doubled during the recovery.

OPEC+ appeared; non-OPEC players agreed to participate in a production agreement to help stabilize and sustain prices. While not explicit in the OPEC+ agreement, the lower price band was expected to keep the growth of shale oil in check. As mentioned before, shale overcame the challenge and won.

The OPEC+ market stress at the end of 2019 had valid concerns. From the supply side, the sustained oil price continued to fuel investments and production from shale. The U.S. was exceeding 12 million BOPD production and 75% was coming from unconventional resources. The sources of capital for shale plays were less since the 2016 crash and analysts argued that the shale industry was producing operating cash but not reaching financial breakeven points. Some predicted the industry would implode financially.

For some in OPEC+, balancing with further cuts would hurt OPEC+, protect price and if the shale industry faltered, the bet might have had a good outcome. For others in OPEC+, further cuts extended the subsidy of shale oil and was not seen as a viable option. The seeds of diverging points of view were evident at the end of 2019 and before COVID-19 attacked.

Shale oil as a disruptor has been a fact for over 5 years; however, a disruptor only from the U.S. Large prospects for unconventional oil lie outside the U.S., but none yet developed to a large scale. Given the success of the development of the U.S. resource, one must consider the possibility that some of these prospects outside the U.S. can be successfully developed. In that scenario the volume will add to the difficulties of balancing and controlling the supply side.

The supply side of oil liquids has fundamentals and drivers that are complex and intertwined between OPEC and non-OPEC producers. Until a few years ago, OPEC was still the agreed "hand on the joystick". Since 2016, OPEC+ changed the membership to production agreements. As we saw in April 2020, now we have "GLOPRO", global producers agreeing to cuts.





Oil and the Energy Mix: These reflections focus on oil as a major actor in several world crises, highlighted in the beginning of this article. At 31% participation of the world energy mix in 2018, one may ask: Why does oil trigger crises? Why do we talk more about the price of oil and less about the prices for other energy sources? Natural gas has an energy mix share at 24% and coal at 27% in 2018 and yet we do not talk about a gas or coal crisis. The other 18% comes from nuclear, hydro and renewables and are never referred to as a cause for a supply or demand concern. Why?

OPEC was created in 1960. Oil had 27% share on the global energy mix, rising to a peak of 45% at the time of the 1973 embargo and since then dropping to 37% at the turn of the century and to 31% by 2018. Coal at 38% in 1960, has been stable at 25-28% since 1973. Natural gas, starting at 11% in 1960, steadily increased its share to over 24% in 2018, mostly from coal and oil liquids. Electricity generation from oil was 24% in 1974 and is down to less than 2% today.

Oil has been the main source of transportation energy, land, sea, and air. Sixty-six percent of oil produced is used in transportation and of that 79% goes to road transportation. The incidence of oil in transportation and the logistics of supply and demand are important factors explaining the relevance of oil in day to day operating models.

Oil is a continuous interconnected pipeline from source to end user. A disruption in price, supply or demand impacts in a truly short term. Whether for land, sea or air, oil fuel is a common element not subject to short term substitution. The recent normal world oil production reached 100 million barrels per day with a global storage capacity close to 800 million barrels. Eight days of storage, steady production and consumption and no short-term alternatives for substitution is a formula for an extremely sensitive market that reacts sharply to changes in supply and demand. The market interconnectivity of oil is the key to its sensitive reaction profile. For transportation, 85% of the fuel comes from oil liquids; any disruption in supply or price has an immediate impact. A less likely scenario of sharp change in demand will also have immediate impact. A sharp demand drop was not a scenario before COVID-19. A sharp increase expected with the COVID-19 recovery will also be an exception although not as sharp as the drop we experienced.

Coal and natural gas markets focus on electricity generation; their supply and demand profiles are different. Both have regional markets not globally interconnected from the supply side. Gas and coal producers and consumers have long-term contracts and maintain generally stable supplyconsumption curves. Both behave closer to food or industrial commodities where elasticity of supply and demand respond to markets without the sharp reactions seen in oil. Additionally, electricity generation has alternate sources to coal and natural gas. Electricity delivery is comingled in many markets creating dampers to supply, demand, and source changes. Electricity can also be routed from one market to another when regional demand or supply changes.

Some electricity markets have plants with dual fuel capability and change from a source to another based on market dynamics. This is most common in coal and gas generation plants.

Oil will continue to lose its share of the global energy mix but remain a dominant player in transportation. Until alternative energy sources are deployed widely in transportation, changes in oil supply, price and demand dynamics will have a large impact for the world.

Natural gas has the highest potential to increase its share in industrial transportation. Electricity has the same potential for human transportation. Disruptive electricity storage technology is the catalyst to increase range, versatility and speed up a shift to electricity-based transportation.





Comparing and Contrasting 2016 to 2020: The oil crises of 1973, 1986, 1998 and 2016 are different when analyzed in detail however, they share market forces elements and events that could have been modeled in scenario planning.

An embargo by the controllers of 50%+ of the supply. An oversupply after developing alternate oil sources protected from embargo and a reduced demand growth from higher efficiency. Expanded production meeting sluggish economy. New oil volumes meet an economic slowdown. These scenarios could have been part of business school case studies. All were predictable.

The 2020 crisis will go down in history as unexpected, unprecedented, and unpredictable. Contrasting 2016 to 2020 will help us understand what occurred and view potential outcomes.

In 2016 the world completed a long period of increased production and demand. Non-OPEC supply increased above OPEC's with disciplined production exporters supporting prices for all. A global economic slowdown and the concern of producers on increasing shale oil volume triggers the 2016 crisis. Prices dropped 60% before measures were taken to balance the markets.

2020 was different. 2019 ended with friction among OPEC+ producers. Since 2016, prices remained lower than those before the 2016 crisis but allowing stability among players. Shale oil volumes continued to grow at lower but stable prices. Available financing along with operational and technical innovation bet on shale producers being able to scale up and get to the other side of the investment hump to deliver positive cash flow and tangible profit. Inside OPEC+, producers had two views; in one, shale production would peak at lower prices and economics would set its limit. Others viewed sustained pricing as subsidy to shale oil and had no appetite to continue such approach. The friction was a fact, responses were not executed during the early part of 2020.

COVID-19 arrives in January 2020. By February the world starts to impose travel restrictions and the initial lockdowns. OPEC+ began to discuss alternatives with diverging opinions. Early March, Saudi Arabia proposed additional cuts to respond to COVID-19. Russia disagreed expressing lack of support for further subsidy for the shale industry. Saudi Arabia in an unprecedented move raised production by almost 3 million BOPD and at the same time offered a unilateral price discount to customers. The 2020 price war was on, pricing dropped by 50% on the Saudi move. To this point, while drastic and unprecedented, the actions and results were within potential scenarios of supply, demand, response, price, and outcome.

What followed was likely not anticipated by Saudi Arabia. As country lockdowns started and spread, air travel was curtailed, people around the world were urged to stay home and the demand drop, that started with China, took a global steep dive sending prices tumbling down. The world saw in 3 weeks a 20-30% drop in demand according to most analysts. The drop was sudden, firm and price tumbled 90% from pre-COVID 19 levels.

The world entered a new era, a new phase, an environment not seen before. It was commonly agreed that oil supply drove price and demand. It was the premise behind OPEC, behind historical production agreements and their breakups. This time it was different. Demand drove supply and price to the ground; the oil industry was upended by a global response to a global health threat.

An important aspect to view in perspective is that previous oil crises did not have the magnitude of what is being experienced in 2020. The main driver was not related to the economy or the operational supply and demand. An independent and external factor to traditional drivers appeared and proved to have general, global, and strong implications for humankind generating a response that impacted the entire world. For the same reasons, recovery will also be different.





The responses in 2016 and 2020 were different:

In 2016 the discussion focused on shale oil. Over the previous years, shale oil increased its output supported by stable pricing, available funds, and novel operational and technology innovations. There was a global over supply and a minor economic slowdown triggered the crisis. The trigger came when swing producers stopped providing the balance. As in previous crises, a production agreement by exporters gave way to a solution. This time an important element came into the picture, OPEC+ was created to include non-OPEC countries willing to adhere to the cuts. Led by Russia, the non-OPEC countries in OPEC+ had high NOC and government control and did not include Western Europe or North America. The agreement stabilized the market at a lower price band than pre-2016. The agreement had an underlying intent to curve the shale oil growth and became a test of the technical and operational resilience of the shale plays. As we have said, the shale plays passed the test and won. The evolution of production and prices from 2016 to 2019 was an outcome of the OPEC+ agreement, however, it can be argued that the doubling of the shale output was not intended; quite the opposite, lower prices post 2016 were to be a barrier to shale oil growth.

The 2016 crisis was the big test for shale. The play was new and its response to a shutdown and restart unknown. Breakeven prices in 2016 were higher, ability to improve cost unknown and untested. We recall varied opinions on what would happen to production in uncompleted wells or those being shut in. Pundits expressed varying degrees of concern; few showed no concern. Three years later, the shale plays proved to be more resilient than expected, costs were down from technology innovation and output doubled. Shale oil consolidated as a relevant balancing resource to OPEC's volume and proved its viability at the lower price band. Any notion of shale leaving the market was dissipated. Again, market forces survived another crisis.

As we navigate the 2020 crisis, we see a response with different elements to those of 2016 and before. For one, a 30% demand drop is massive, traditional responses no longer viable. This crisis impacted producers and consumers alike. A demand drop driver upended supply like never before. COVID-19 put all oil players on the same side of the table. It was less about us and them and more about all of us.

Before discussing the outcome, it is important to analyze the factors during the crisis. Several elements came to light that did not have prior experience. The interconnectivity of the oil value chain from reservoir to consumer is now well known. One hundred million barrels in production have nowhere to go if demand drops substantially. Storage is limited and with reduced demand, supply must stop. In the process, refineries stop taking deliveries when their products do not go to markets. Tankers remain offshore and pipelines must stop if refineries stop receiving. Excess oil fills ups surface storage quickly and the industry must find any available space to store production. Rail cars, underground reservoirs, unchartered vessels, all now priced assets to store oil. When storage fills up, oil fields must stop producing.

The industry and the markets were upended. Contractual trading resulted in negative oil price futures for the first time. Without storage availability and no customers, the price equation went where it had never been before.

On this new and disrupted environment, OPEC was not able to use its balancing power and the world came together on a global rescue plan. Strategically, the western world could not allow its oil industry to crash and burn on record low prices. Conversely, OPEC+ nations cannot survive long term at prices well below fiscal balancing thresholds. Therefore, joint OPEC+ in addition to natural and deliberate cuts by other non-OPEC nations, including North America, are delivering the first ever global production balancing act.





The Oil Industry Going Forward: Unprecedented as 2020 has been, the recovery is expected to be uncharted territory as well. COVID-19 impacted the world and every aspect of it. Such an impact allowed us to view many things with a different lens and our lives will forever be different for it.

We discovered how much we can work from home and away from our offices. We discovered we can work close without being together. Video communications for most was what we did sporadically for fun, for family and for friends. We now know how to work via video. We traveled many hours to meet a few hours, now we meet for a few hours without traveling many hours.

Office space is in question. COVID-19 forced us to learn "physical distancing"; such new rules will upend our current 30-40 ft² cubicles. Companies are realizing employees can work from home, all the time. Cubicle sizes may grow to adapt to new distancing rules, but less cubicles will be needed as more people work from home going forward.

Business travel may change dramatically. The last few months have all been about "Zoom" here, "Webex" there, "Skype" today, and "Webinar" tomorrow. In person trade shows went virtual in the short term. All of these elements translate to less air and land miles, less commuting, less hotels, less meals on the road, more interactions from our home or office base. Less oil burned.

For individuals and families, telemedicine is in full use using video communication options. Home delivery is replacing visits to supermarkets, malls, and pharmacies. We are communicating with family in group videos in a way we never did before. Trips for outside services are less. Less oil.

The planet took a breather. Some describe it as the world coming to a halt, resetting. Videos and pictures show blue skies instead of stained clouds. Wildlife is venturing into towns and cities under reduced human interference. Waters cleared; fish seen with less traffic. What will recovery look like? Some of what we are experiencing, and learning will remain as part of the new normal. We do not know when COVID-19 will be controlled and until then, several measures will remain. We will distance, wear PPE, limit in person interactions, take precautions, use sanitizing products.

Some experiences will stay with us as a new and better way to live and interact. More work from home, less commuting, less need to travel, less need to move around town for services.

After the 1973 oil embargo, the world agreed we were "guzzling" fuel in cars, airplanes, trains, and boats. Innovation brought us more efficient engines, smaller cars, a curved demand. This time, we will likely not focus only on efficiency but rather on amount of use. We will likely do less commuting, less flying, less driving, and establish a new normal for demand of oil in transportation.

The glimpse of blue skies and thriving wildlife may strengthen sentiments for greener environments and further development of renewable energy for transportation. Less talk about "energy transition whenever it happens" and more about how to accelerate it to change the energy mix.

The demand during and upon the recovery may be a new normal. If all or some of the changes in business and personal behavior stay with us, demand might not recover to the levels of January 2020. The first signs of a change are in the news. Some airplane orders are being cancelled; some companies are signaling jobs that will work from home "from now on".

The new oil demand normal will likely be lower than in January. How that new normal will be managed and how will the supply be distributed is not yet known. A production agreement is in place; however, it was agreed in the middle of an unprecedented crisis. We can expect further discussion before we can count on it being firm.





What will the oil industry new normal look like?

By default, industry and business follow and respond to supply and demand, a premise not always easy to manage. In industry and business dynamics other factors affect market forces. Strategic, political, economic, competitive, and technology elements are and will continue to be part of the business framework.

We buy personal goods from several brands and countries based on price, value perception, features and personal taste. However, a defense weapon for the U.S. will likely be sourced in the U.S. or one of its trusted allies and one for Russia from Russia or one of its trusted allies. Price, convenience, choice applies in some industries; strategic elements define others. Going forward the oil industry will again blend business market forces and strategic elements for its framework.

As discussed earlier, we left behind a "peak oil" scenario and accepted a "peak demand" model. Under "peak demand", some oil will be stranded; whose oil will be stranded first?

In January 2020, the world oil demand and supply balanced with production profiles of producers and market price as outcome. Limited production from OPEC+ and supply at capacity from non-OPEC balanced demand. How will players' supply balance the demand on recovery? How will participation look like?

The current agreement is global. Most relevant players are participating. Notably, the U.S. led the effort. However, on the return of demand, how strong is the agreement? What options are there to implement a framework of supply that is sustainable and satisfies all players?

Under a "peak demand" scenario we accept that there is more oil in the ground than the world will ever demand. With a risky and broad brush, and ignoring any other elements, one could argue the world should produce lower cost oil at a lower price to the benefit of all consumers. Producing lower cost oil first means OPEC likely could produce at maximum capacity and deliver close to 40-50% of the world oil demand for as long as the energy transition lasts. In this scenario, higher cost oil of today will not see the surface, mostly from non-OPEC nations. The U.S. shale could be one example of stranded reserves. Will \$15-\$20-dollar oil be the right model? Is it sustainable? This scenario would heavily impact and change the market.

However, fiscal breakeven for some members of OPEC is substantially higher that the U.S. shale estimated financial breakeven. Is low oil price sustainable for OPEC? Many U.S. shale producers are financially leveraged and need price and volume to overcome the investment hump and drive cash flow and profit. For OPEC nations, the fiscal thresholds are their leverage; it may not be an immediate collection agency, but it impacts longer term economic sustainability. This is painfully true for nations where oil revenue represents a high share of GDP.

The current global oil production agreement is an unprecedented acceptance that participation of all is needed to balance the market. History has shown that, one way or another, all producers participate in the solution. OPEC implements its agreed limits. For non-OPEC, price driven market forces drive a response. One way or another, all participate. Some at will, some by force.

Potentially, the cycle to break is OPEC balancing supply while non-OPEC pumps at full increasing capacity until an economic slowdown or OPEC's need to adjust share launches the next crisis.

> Maybe the oil industry should "Agree to Agree" not be "Forced to Agree"

"Transition to a New Normal?"



