2022 Upstream Industry Outlook

Utkarsh Gupta

440 Cobia Dr • Ste 1704 • Houston • TX 77494 • (281) 506-8234
www.adi-analytics.com • info@adi-analytics.com

Upstream: Balancing growth and discipline

ADI Analytics

January 2022

After the COVID-19 pandemic-related lockdown in 2020 that shook the global economy and shattered oil prices to record bottoms, the upstream oil and gas industry rebounded strongly throughout 2021 with oil prices reaching record levels not seen in past six years. Upstream oil and gas performed better than expected in 2021 and future trends will rely on how the upstream producers and investors go along in 2022. We expect 10 key trends that will shape the upstream oil and gas industry in the coming years:

North American shale producers will show greater capital discipline

North American shale industry is no longer following the traditional price and investment cycle

Despite high oil prices, O&G companies will show greater production and capital discipline and we expect global upstream capital spending to grow marginally in 2022. Even as WTI oil prices returned to pre-pandemic levels of just above $70 per barrel, shale producers are choosing to conserve cash rather than spend it on new production. Historically, shale companies have reinvested all their discretionary cash flow back into new capital spending and then borrowed extra to reinvest on top of that. But now this reinvestment rate, once as high as 110-130% of cash flows, has fallen sharply. A fall in drilling but uncompleted (DUC) wells inventory, flat crude oil production levels, and slow rise in rig count suggests that the industry is no longer following the traditional price and investment cycle.

Share of oil companies' capital spending on renewables will increase as part of their commitments to energy transition

Oil majors will lead energy transition

More and more companies have announced their net-zero goals and robust oil prices will allow them to fund their net-zero commitments going forward. High oil prices will allow producers to comfortably invest in riskier and costlier green energy solutions such as carbon capture, storage, and utilization (CCUS). Oil majors will lead the transition with a greater share of capital spending in renewables which will be followed by O&G independents, Canadian oil sand producers, and national oil companies.

FlexPO + 2022 Agenda

Thursday, February 17, 2022, Houston, TX

https://flexpo.adi-cmr.com/

7:30 am **Registration and Breakfast**

8:15 am **Keynote Presentation**

Scott Wright*, Huntsman, Division President*

9:00 am **Chemicals Outlook in 2022**

Dr. Uday Turaga*, ADI Chemical Market Resources, CEO*

Break

10:05 am **Feedstocks Review**

Dhaval Shah*, SABIC, GM Corporate Technology & Innovation*

Macgill James*, Borealis, Manager, Feedstocks Supply & Business Development*

11:05 am **Polyethylene and polypropylene markets**

Richard Thomas*, TotalEnergies US, Sr. Manager, Strategy and Business Development*

12:05 pm **Lunch**

01:05 pm **Specialty polymers and performance materials**

Jose Mendez
SK Geo Centric, Global Business Director

Juan Gaytan
Kaneka North America, VP, MS Polymers

02:05 pm **Engineered polymer markets**

Dr. Vijay Mhetar*, Kraton, SVP and CTO*

Dr. Hartmut Siebert*, Sulzer, Head of Polymers Business*

Break

03:30 pm **Investor panel**

Meghan Leggett
White Deer, Principal

Brian Orkin
Arsenal Capital Partners, Investment Partner

04:15 pm **Innovation, recycling and sustainability**

Raj Krishnaswamy
CJ Bio, VP, Polymers R&D

Roman Wolff
Origin Materials, VP, Engineering

Adjourn and Cocktails

FlexPO+ Partner

U.S. oil production to remain ~12 MMbpd with producers maintaining production discipline even as oil prices are rising

DUC inventory will continue to decline in 2022

Oil companies will continue to draw down their inventory of unfinished wells as they are limiting new drilling to satisfy investors who want to see financial discipline after the pandemic-driven oil bust. Drilling but uncompleted wells (DUCs) help operators produce oil and natural gas at a lower cost and with high decline rates per well, operators are drilling new wells by first exhausting their DUC inventory to maintain production levels before putting their money on a new well. The DUC inventory declined by ~27% in 2021 from the previous year and is expected to decline further through 2022 before the producers start to drill new wells.

Conventional oil production will reach pre-pandemic levels

OPEC+ output may increase by ~500,000 b/d by June 2022

OPEC maintained its forecast that world oil demand will grow by 5.65 million bpd in 2021, after last year's historic decline at the start of the pandemic. In 2022, OPEC expects further growth in demand of 4.15 million bpd which will push world consumption above 2019 levels. OPEC and its allies, known as OPEC+, are gradually unwinding record output cuts put in place last year. Recently, they agreed to boost monthly output by 400,000 bpd in January 2022, despite the concerns about the new variant. A new drilling program will get Russian supply growth back in line with its OPEC+ quota hikes, allowing crude production to increase by nearly 500,000 b/d by June 2022.

ESG, sustainability, and net-zero commitments will lead to big portfolio shifts

Investors are increasingly seeking out positions that reduce their exposure to climate change as well as the risk of stranded assets. Several oil and gas companies have already set net-zero-emissions targets. Occidental Petroleum partnered with the Canadian start-up Carbon Engineering to build a plant that will capture and bury 500,000 metric tons of CO_2 each year. Oil majors' low-carbon investment guidance shows that BP and Equinor will invest ~35% of the total capex followed by Shell and ENI will invest ~20-25% going forward. Apart from the doubled investments in clean energy, a major difference from 2020 is that U.S. supermajors, ExxonMobil, and Chevron, have also pledged investments in low-carbon energy.

Business model restructuring will significantly impact oilfield service companies

Oilfield service companies are investing in low-carbon technologies

Revenues and earnings of most of the oilfield service (OFS) companies have fallen sharply as most upstream companies have reacted to investor skepticism and negative market sentiments cutting their cost structure with the goal of decoupling their costs from the movement of hydrocarbon prices. With margins at the mercy of another price cycle and reduced spending, many OFS companies are crafting a new strategy for the future of energy. They have restructured their business by making big bets on cloud and edge computing, partnered with startups and institutions through development centers, and investing in low-carbon technologies as a secondary solution provider to upstream players committed to energy transition.

Operators will continue investments in their offshore oil & gas assets albeit at a slower pace of growth

By the end of 2022, 13 new projects could account for ~12% of total Gulf of Mexico crude oil output

High oil prices will allow oil majors to continue offshore oil and gas discoveries and invest in and highly productive deepwater assets. Prospects in Brazil, Guyana, Suriname, Namibia, and South Africa will see high capital investments. By the end of 2022, 13 new projects could account for about 12% of total Gulf of Mexico crude oil production, or about 200,000 barrels per day. Another relevant discovery was made offshore Malaysia when Nangka-1 became the second successive exploration well drilled within Block SK 417. Furthermore, Norway continues to unearth small-to-medium finds, providing an opportunity to materialize these discoveries with available infrastructure.

ADI Forum

2022 ADI Forum, Thursday, February 24, 2022, Houston, TX

www.adi-forum.com

7:30 am Registration and Breakfast

8:15 am Welcome

8:30 am Keynote Presentation

Chris Smith
Cheniere Energy, SVP Policy, Govt & Public Affairs

9:15 am Energy Outlook in 2022

Uday Turaga
ADI, CEO

10:00 am Panel 1: Upstream Oil & Gas

Kirsty McCormack
BP, VP, Special Projects

Linhua Guan
Surge Energy, CEO

Aaron Ketter
Devon Energy, VP Mid-Cont. & S. TX

NatalyaBrooks
Moderator

11:00 am Break

11:20 am Panel 2: Midstream and Natural Gas Liquids

Paul Bienawski
Enstor Gas, CEO

John Staebel
LyondellBasell, Dir, NA Feedstocks

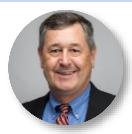
David Paradis
Trillium Flow, CEO

Joseph Gentry
GTC Vorro, VP, Licensing

12:15 pm Lunch

01:15 pm Panel 3: Natural Gas & LNG

Michael Mott
NextDecade, SVP Strategy



Matt Jackson
Crowley, VP BD, Ship. New Energy

Dena Wiggins
Natural Gas Supply Assoc., CEO

2:15 pm Panel 4: Refining and Downstream

Heath DePriest
Phillips 66, VP Emerging Energy

Brandon Schwertner
Priority Power Management, CEO

3:15 pm Break

3:35 pm Panel 5: Hydrogen

David Hatrick
Huntsman, VP Innovation

Trevor Best
Syzygy Plasmonics, CEO

Muhammad Islam
IHI E&C, SVP BD and Technology

4:35 pm Panel 6: Energy Transition

Eric Bradley
Taurus Invest. Holdings, MD New Energies & Sustainability

Leslie Beyer
Energy Workforce & Technology Council, CEO

Alex Robart
Microsoft, Energy & Sustainability Leader

5:30 pm Adjourn and Cocktails

ADI Forum Partners GTC VORRO, TRILLIUM FLOW TECHNOLOGIES, IHI, AlphaSense, PriorityPower, CISTAR NSF Engineering Research Center

Non-public shale companies will capitalize on high oil prices but may disrupt the balance going forward

Private equity-backed companies are being driven to pump harder

After years of unwieldly supply growth, large E&Ps and oil majors have shown restraint in capital spending and production volumes but private operators' ambitious growth plans present the industry with a wild card as prices rebound and it attempts to lift its own production and financial situation. At one point, DoublePoint Energy was running more rigs in the Permian Basin than Chevron, and meanwhile, family-owned Mewbourne Oil had about the same number of rigs as ExxonMobil. Private equity-backed companies are being driven to pump harder than ever before because of a more complicated exit strategy. We expect a lot of private operators will return in an aggressive manner to add wells and rigs because they are able to realize returns faster as oil prices are improving.

Gas players will make it big going forward

Global natural gas production dropped by almost 2.5% or 10 billion cubic feet per day in 2020 impacted by reduced demand due to the COVID-19 pandemic and resulting economic recession. Demand recovery in 2021 and growth in emerging markets from continued displacement of coal with natural gas drove the gas supply growth although most of it mainly came from projects already under development. Going forward, Europe, mainly led by Russia, followed by Middle East, Africa, North America, and Asia Pacific are collectively expected to grow at 7-9% through 2025. North American gas supply growth will mainly be driven by U.S. LNG exports of natural gas produced primarily from plays such as Appalachian and Permian. European gas production growth will be driven by Russia, which will benefit from projects such as the Power of Siberia and Nord Stream 2 pipelines, and the Yamal and Arctic LNG 2 plants.

We expect a greater focus on material and substantive efforts in 2022

ESG issues are at an inflection point in the global chemical industry with growing focus on material and substantive efforts

More and more companies are being impacted by ESG issues from regulators, consumer choices, and other stakeholders. Going forward, we expect a greater focus on material and substantive efforts. For instance, BASF acquired a 49.5% share in the offshore windfarm Hollandse Kust Zuid and signed multiple power purchase agreements (PPA) with renewable energy providers as part of their net-zero CO2 emissions goal. Additionally, in partnership with SABIC and Linde, they are developing an electric steam cracker furnace. In another example, Poland-based PKN Orlen and Orlen Poludnie are planning to build 25,000 tpy bioethanol plant. Finally, India-based Gas Authority India Limited (GAIL) and Gujarat Alkalies and Chemicals Limited (GACL) are also planning to set up a 1,428 tpy bioethanol plant. These trends are expected to continue over 2022.

Geopolitics are likely to play a longer role in oil markets than ever before

Powerful alliances will play a key role in oil price trends

The steep rise in oil and gas prices was probably the most dramatic development in commodities markets in 2021. The surge in energy prices fueled high inflation worries as soaring costs badly affected businesses and consumers globally. Western countries accused Russia of limiting gas deliveries to put pressure on Europe amid tensions over the Ukraine conflict and to push through the controversial Nord Stream 2 pipeline set to ship Russian gas to Germany. Increased shale gas and shale oil production in the USA will affect global geopolitics and national security considerations. An influx of Qatari LNG into Europe and Asia, which is diverted from the USA, will erode the tremendous market share held by Gazprom and significantly reduces its pricing power. Crude oil prices also rocketed in 2021, gaining more than 50% as demand recovered and oil-producing nations led by the Organization of the Petroleum Exporting Countries (OPEC) and allies including Russia modestly boosted supplies. Powerful alliances will play a key role in determining the future trends of oil prices.

Utkarsh Gupta

ADI Analytics will continue to monitor, track, and research the upstream oil and gas market. Please review and contact us to learn more about our research.