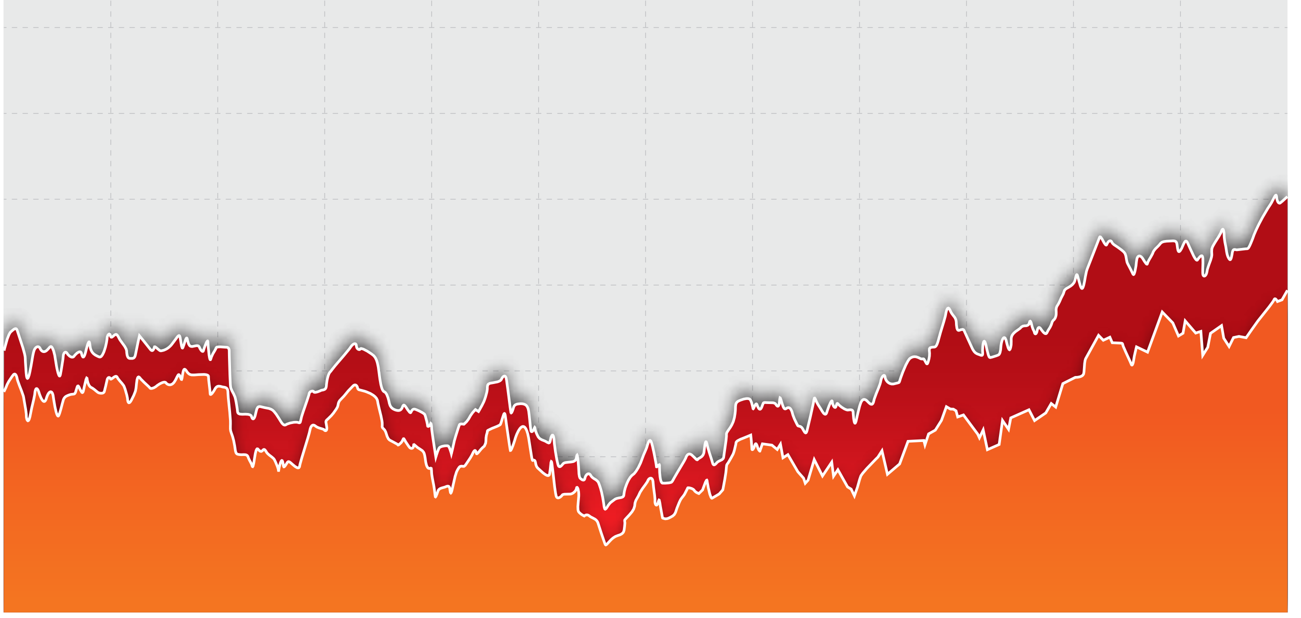

2017 Industry Review and Outlook

The world economy was buoyant as a whole in 2017 with a steady increase in energy consumption. The oil and gas industry showed a broad recovery as investment activities picked up and the global market and oil and gas prices continued to turn for the better. There was an accelerated shift in energy mix towards clean and low-carbon energies. The global energy transition progressed steadily amidst challenges.

Oil market gained balance and oil prices picked up. Global oil prices showed a V-shaped recovery in 2017, with Brent and WTI crude oil futures averaged at USD 54.7 per barrel and USD 50.9 per barrel, up 21.3% and 17.0% respectively year-on-year. As the world economy grew faster, the growth in global oil demand accelerated, increased by 1.6 million bbl/d from one year earlier. Due to OPEC production cuts, world oil supplies only increased slightly by 0.6 million bbl/d from one year earlier. In terms of oil market fundamentals, there was a shift from an oversupply of 0.7 million bbl/d to an undersupply of 0.3 million bbl/d for the first time in the past four years. As market rebalancing continued, global oil inventories seemed to shrink but still stood at a very high level, indicating a fragile balance. U.S. crude oil exports soared by as much as 65% from 2016 and expanded into new markets, resulting in the changing landscape of the global oil market.

Growth in global natural gas consumption rose again and gas prices rebounded. In 2017, global natural gas consumption rose 2.2% to 3.62 trillion cubic meters with an impressive leap in the Asia-Pacific area to offset the shrinking in North America for the first time in the past five years. Global natural gas production reached 3.7 trillion cubic meters, up 2.7%. Globally, natural gas prices bottomed out as US-HH, UK-NBP, NE Asia Import LNG and NE Asia Spot LNG posting large rises. Global natural gas trade rose 5.6% to 1.15 trillion cubic meters. In particular, the trade volume of LNG totaled 287 million tons, up 12.5% year-on-year, much faster than that of pipeline gas, i.e. 2.4%. Driven by soaring demand in China and South Korea, LNG imports surged in Asia.

The global upstream sector was out of the woods with an increase in E&P investment. In 2017, the world's remaining proven recoverable reserves stayed stable and natural gas reserves increased slightly. Globally, oil production was flat for the year at approx. 4.36 billion tons and gas production increased by 2.7 % to 3.7 trillion cubic meters. Global E&P investment totalled USD 382 billion, up 8% from 2016. Oilfield service market expanded to USD 233.5 billion, up 5% year-on-year. More deepwater projects were rapidly approved, indicating an important growth area for oil and gas production capacity in future.

Oil refining capacities grew with higher utilization rates and refining margins. In 2017, global refining capacity rose to 4.9 billion tons per year, an increase of 29 million tons compared to the previous year. Among the top trio of Asia-Pacific, North America and Western Europe, Asia-Pacific was accounting for an increasingly larger share. Daily crude runs of major refineries exceeded 80 million barrels for the first time, hitting a record high of 80.58 million barrels. Globally, utilization rate averaged at 85%, driven by disaster incidents and insufficient refining capabilities in some regions. There was a boom in refining margins, as Western Europe, Singapore and the Gulf of Mexico posting 44%, 22% and 49% in growth respectively.

Oil and gas M&A was still in an important window period. M&A in the upstream sector picked up noticeably. After a two-year downturn, a total of 360 merger and acquisition deals were completed in 2017 around the globe, amounting to approx. USD 170 billion, up 21% and 13% respectively year-on-year. However, prices for reserves remained low. 2P reserves were traded at USD 5.28 per barrel in 2017, which was about 60% of that for high oil prices, despite a 42% increase from 2016. International oil companies and financial institutions had a bigger presence in the capital market. Oil and gas cooperation was at a time of favorable policies. Most oil and gas producers were undergoing transformation, opening up for cooperation across the whole industrial chain and making timely adjustments to the terms and conditions of oil and gas cooperation.

China's economy showed clear signs of robust and healthy growth in 2017, with energy consumption picking up and energy mix getting cleaner. Government authorities launched a range of key initiatives on expanding market access, improving institutional framework and stepping up regulation under the *Guidance on Deepening Institutional Reform for the Oil and Gas Industry*.

A rise in China's apparent oil consumption growth and sluggish growth in refined product consumption were seen. China's apparent oil consumption was 590 million tons in 2017, up 5.9% or 3 percentage points higher than the previous year, marking the highest level since 2011. Net oil imports rose 10.8% to 396 million tons, 1.2 percentage points higher than the previous year. China surpassed, for the first time, the United States as the world's largest crude oil importer in 2017, with its dependence on foreign oil rising to 67.4%. The upturn in industry, transportation, real estate and other sectors brought refined product consumption back on the path of growth. The full-year apparent refined product consumption was 325 million tons, up 3.4% or 3.9 percentage points higher than that of 2016, with an unusual retreat in gasoline and rise in diesel consumption growth though. Domestic refined products output reached 361 million tons, up 3.5% year-on-year. However, due to tight quotas, the refined products export growth fell sharply to 5.1% after staying in the fast lane for five years.

China's natural gas consumption grew faster than expected, resulting in tight market supply and seasonal shortage. Domestic natural gas consumption growth was much higher than expected in 2017, driven by favorable macroeconomic and policy factors. The full-year natural gas consumption was 235.2 billion cubic meters, up 17% or 10.6 percentage points higher than the previous year, accounting for 7% of primary energy consumption. Natural gas supplies amounted to 240.2 billion cubic meters for the full year, up 15% year-on-year. In particular, natural gas imports saw an impressive 24.4% increase, with dependence on foreign natural gas climbing to 39.4%. There was a rise in the average natural gas import price. Under the "2+26 Cities" Program, the use of natural gas or electricity as an alternative to coal was promoted in Beijing, Tianjin, Hebei and surrounding areas. Due to deviant execution, there arose a bunch of issues, such as temporary shortage of gas supply and LNG price hike.

Steady progress was made in China's E&P activities and upstream investment picked up. China's oil companies refocused their exploration efforts on mature blocks in a bid to ensure reserve producibility. These efforts resulted in a number of major discoveries in Mahu and Shunbei, etc. In 2017, domestic crude oil production dropped approx. 3% to 192 million tons, showing a smaller decline as compared with 7.1% in 2016. Natural gas production once again grew on a double-digit base, rising approx. 10% to 149 billion cubic meters. China's oil trios saw an upturn in upstream investment budget, indicating a recovery in the domestic E&P sector.

China's refining sector saw fast capacity expansion and overcapacity worsened. After a two-year plateau, China's refining capacity reached 770 million tons per year, with a net increase of 17.6 million tons. Crude runs was approx. 568 million tons for the full year, up 5% year-on-year. Leveraging access to crude imports, teapot refineries were getting bigger and more competitive. Their refining capacity rose to 162 million tons per year and share of gasoline and diesel production continued to expand for five years in a row, accounting for 21.5% in 2017.

Significant progress was made in international oil and gas cooperation with overseas equity crude production over 150 million tons. In 2017, overseas equity production of Chinese oil companies reached 190 million tons of oil equivalent, up 8.9% from 2016. In particular, equity productions of crude oil and natural gas were 150 million tons and 45 billion cubic meters respectively. The Belt and Road Initiative and the joint efforts between China and the U.S. produced breakthrough results. Private companies and local state-owned enterprises speeded up overseas investment and explored M&A opportunities actively, with their share of total equity production rising rapidly to 10%. A diversified mix of investors was observed in overseas investment.

Looking ahead into 2018, global oil market fundamentals will continue to improve, with median oil prices moving upward. Brent crude oil prices are expected to average between USD 60-65 per barrel and vary between USD 50-75 per barrel. Natural gas market will remain oversupplied. Natural gas demand and production are expected to rise to 3.67 trillion cubic meters and 3.78 trillion cubic meters respectively. Global refining capacity is expected to reach 4.95 billion tons per year. Based on refining facilities planned and under construction, China's refining capacity additions will account for more than half of the net increase in global refining capacity by 2020.

China's apparent oil demand is expected to exceed, for the first time, 600 million tons in 2018, with its dependence on foreign oil moving closer to 70%. Rapid growth in natural gas demand will continue. Natural gas consumption is expected to reach 258.7 billion cubic meters, up 10% year-on-year. Domestic E&P will stay buoyant with a sustained boom in upstream investment. As a result of structural transformation of the economy, adjustments in the real estate market, heightened efforts in environmental protection, and access to alternative energies, demand for refined products is expected to slow down. Refining capacity is back on the path of fast growth and expected to exceed 800 million tons per year for the first time. Teapot refineries will see a bigger share of the total refining capacity. Output of refined products will expand and the oversupply in market will stand above 45 million tons, with pressure continuing to mount over refined products export.

Source: *2017 Report on Oil & Gas Industry Development* by CNPC ETRI