

## **Libya and Great Challenges of Overcoming Difficulties to Exploring and Producing Shale gas, and Tight Reservoirs Potentials, (Shale oil)**

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### **Abstract**

Oil and gas is the main economic driver for Libya. They are Libya's sole cash source. The biggest challenge for Libya, in the future, will be putting more efforts into enhancing oil and gas recovery, maintaining high production levels, and finding more hydrocarbon resources; such as, shale oil, shale gas reservoirs and generally tight oil reservoirs. Libya is one of major producing countries in the region, with daily production rate reaching to 1.6 MBOPD. Libya was placed one of the top ten producing countries during 1970's reaching production of 3.3 MBOPD. Fluctuation of production rates in Libya is affected by several difficulties and different regimes, which are affecting the rate of production. The big question now is; does the country have the capacity to achieve such production levels again? Clearly this question has a wide range of answers depending upon the geoscience, engineering and investment strategies on the technical side. It also depends on the market demands in order to manage the country's development. An intelligent approach to answering this question is to consider all these elements. The size and importance of the oil and gas sector makes it essential that these tasks are given a high priority. The oil and gas sector will play a significant role in Libya's economy. To achieve this potential requires an ideological change from "business as usual". Libya has an opportunity to start a profound movement towards change and development of the industry that can be a major agent for transformation for all walks of life. Growing demands and price increases, Libya's efforts are pushing towards the undiscovered gas potential in the deep areas of the basins. The potential of these areas will be better assessed when geological and geophysical knowledge, innovation, and advanced technologies are used effectively. During the 1980's, with the increase in gas prices and consumption, gas became an attractive commodity, and with successful exploration drilling, new reserves were found. This encouraged Libya to start seeking for new strategies to increase the daily rate of the production of gas to exceed 3 billion cubic feet per day, becoming one of the biggest producers in the region. Even with the expansion of the gas production, there are still unexplored tight areas. This paper is based on previous geochemical studies integrated with the new drilling results of new exploration wells, indicating the presence of several thick formations of organic rich facies of different ages from the Triassic to the Paleocene. All of the data indicates that three of Libya's major hydrocarbon basins are still underexplored. There is plenty of room to discover new play potential from the tight sandstone and shale gas plays.