Target Exploration

Energy Geosciences Research & Development

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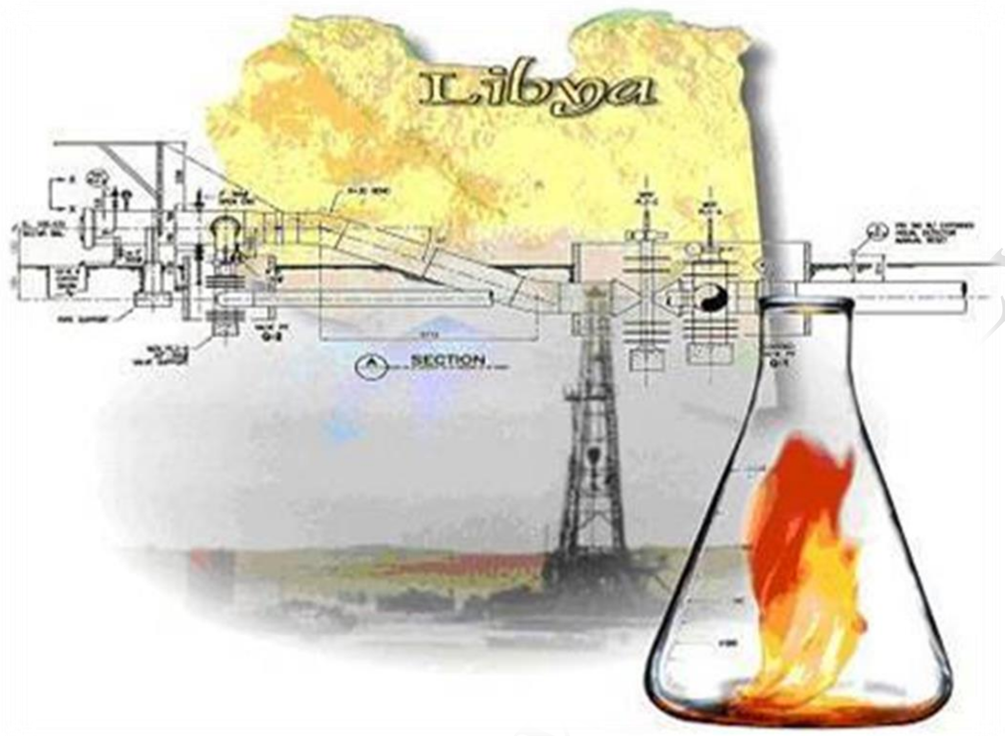

Libya's

Oil &Gas Resources

Key Players, Hydrocarbon Laws, Exploration & Production Records, Past Lessons, Present Challenges, and Future Exploration and Production Potential

Target Exploration Report Tar73

The Report

For twenty years the existence of UN and US sanctions, only lifted in full in 2012, effectively closed down Libya to international researchers and analysts. Lack of access to primary documents and oilfield data led to serious gaps in knowledge about the characteristics of Libyan hydrocarbon sector, its physical development and the legislative and fiscal architecture supporting it. The purpose of this important new work is to fill in those gaps.
The study is divided into eight chapters.

***Chapter One: Historical Perspective*:** The first Libyan commercial oil discovery, the Zelten field, was made in 1959 in the Sirte Basin, at a production rate of 17,500 b/d. By 1970 the country had become the fourth largest producer in OPEC, with 7.5 % of world output and production peaking at 3.3mm b/d. By 2005 this had dropped to around 1.6 mmb/day. Underlying the Libyan oil experience and this dramatic decline were a range of factors, related to internal politico-social developments in Libya, the US and UN sanctions, and major changes in global investment opportunities available to IOCs owing to the demise of the Soviet Union. Significant also were the negative perceptions of IOCs towards the post-1970s fiscal regime for oil investment in Libya, and a heightening of Libya's investment risk profile, especially after the nationalisations of the early 1970's.

***Chapter Two: Key Players, Essential Facts*:** In this key chapter extensive primary data and detailed information on each operating company in Libya is presented, identifying each operator's producing fields, present and projected daily rates of production, company reserves, prospects and leads, and summaries of on-going and future projects. These do not include the new entrants signed up after the first two EPSA-IV rounds, which are discussed in detail in Chapter Five. This section is characterised by the presentation of this data in the form of a series of tables and figures.

***Chapter Three: Characteristics of the Libyan Upstream Oil Sector*:** The author identifies the unique characteristics underlying the development of the Libyan sedimentary basins. After the first discoveries of the 1960's, the main players concentrated their efforts in the Sirte basin where the giant discoveries had been made. Thereafter, until the 1980's, the potential of the remaining onshore sedimentary basins such as Murzuq and Ghadames was not seriously considered, although offshore potential had at least been realised by Agip, who developed the El-Bouri field in 1990. This lead to a situation where, in the writer's view, the other Libyan sedimentary basins have been erroneously perceived as inherently "risky" when compared to the Sirte basin, resulting in their presently grossly unexplored status. The unique characteristics of Libyan upstream development are broken down and analysed separately, including seismic activities and geological prospectivity, exploration and discovery risks, infrastructure development, risks and uncertainties associated with individual Libyan sedimentary basins, reserve risks, technical and capital risks, and crude oil production and its relationship to Libya's OPEC quota.

***Chapter Four: Evaluating Risk in the Libyan Petroleum Agreements*:** An understanding of the evolution and unique characteristics of the various Libyan petroleum fiscal agreements is necessary to fully understand the current Libyan PSC, the EPSA IV model. A thorough analysis of all the Libyan Petroleum Agreements, from the Concessions of the 1950's to the present EPSA-IV, is undertaken. The author concludes with two authoritative and comprehensive tables. The first relates each of the Libyan fiscal agreements, from the 1955 Petroleum Law to the 2004 EPSA-IV, to a series of risk factors, such as duration, surrender, exploration obligations, management and supervision factors, exploration and development expenditure, recompense of Capex to LNOC, production allocation, and royalty and taxes, enabling the reader to readily understand the advantages and drawbacks of each type of agreement. The second table is an evaluation of the effectiveness of all the Libyan petroleum agreements, and appraises and relates each agreement to a series of parameters, such as their contributions to exploration and discoveries, reserves, field development and infrastructure by the IOCs. It also highlights levels of acceptance of their fiscal terms by the IOCs, future prospects, and required fiscal changes to attract IOCs by reducing and spreading risk.

Chapter Five: EPSA IV: Measuring its Success: Initially the author presents and analysis key features of EPSA-IV, ranging from obligations and rights of both parties with respect to exploration and exploitation durations and areas, signature bonuses, royalty and income taxes, ownership of equipment, abandonment, assignment, and the pre-emption rights of the LNOC. A complete analysis of EPSA-IV, Bidding Rounds One and Two is delivered. By critically analysing the defects of both rounds, especially regarding financial commitments for exploration, he concludes that the first two EPS-IV rounds can only be seen as a partial success for the Libyan government. The author then describes the salient features of the Third Bidding Round, in which a points system, will determine the selection of the winners, using three criteria. The first is allocation of production share, the second the amount of the signature bonus, and the third the value of exploration commitments. He concludes, after using a deterministic model that in global terms EPSA-IV still provides a respectable rate of return for the IOCs, and presents a comprehensive table and charts which compare IOC/LNOC returns for each of the Libyan sedimentary basins under three A and B factor scenarios.

***Chapter Six: The Libyan Gas Sector: Maximising the Potential*:** The author notes that the gas sector is emerging as an important force in Libya as domestic and global demand accelerate. Libyan domestic consumption trends have risen steadily over the period 1989-2005, from a tiny usage of 11 MMcuf/d in 1989 to 348 MMcuf/d in 2005. Moving from the domestic consumption scenario, the author then critically examines the Libyan policy vacuum for attracting FDI in gas developments, due largely to the fact that in Libya gas has historically been regarded as the poor sister of oil. Although EPSA-IV contains promising changes with regard to exploitation non-associated gas, the author believes that the Libyan policy makers must address this problem with much more urgency and focus. One of the major drawbacks of EPSA-IV is issues related to the monetization of natural gas which are poorly dealt with or understood by the Libyan policymakers. In order to co-ordinate future gas policy, the Libyan policymakers should consider establishing a body, detached from the LNOC, and similar to the previous Gas Projects Administration, to develop both the Libyan upstream and downstream gas sectors in a comprehensive and coordinated manner. The impressive manner in which Egypt, through the establishment of Egyptian Natural Gas (Egas), which took over control of the country's gas sector from the Egypt General Petroleum Corporation in 2001, has catapulted its gas industry into the global market, is a case in point. In the final section of this chapter, the author undertakes and critically examines, through a case study, the Western Libya Gas Project, the largest gas development project undertaken in Libya, as a 50:50 JV between ENI as operator, and the Libyan National Oil Corporation (LNOC).

***Chapter Seven: Key Issues and Future Trends*:** In this chapter the author examines a wide range of key issues and identifies future trends in the development of the Libyan economy and the role of the hydrocarbon sector in achieving these. The first section he poses and comprehensively answers a key question about the Libyan economy – why has Libya been unable to reduce its reliance on income from petroleum and diversify its economy? In the second section the writer discusses the conflict relating to control over the Libyan Hydrocarbon sector, and examines which Libyan body actually holds this, since most observers automatically assume that it is the LNOC. This conflict of power has led directly to two undesirable consequences. Firstly, the LNOC itself has emerged in the post-sanctions era as a massively complex organization which is not only inefficient and unprofitable, but appears to lack accountability to any other Libyan government institution to benchmark or judge its performance. Secondly, this situation poses major risks to IOCs should they fail to understand where authority over the Libyan hydrocarbon sector ultimately resides. In the third section, the key economic and legal issues surrounding the return, in 2005-2006 of the US companies to their assets, frozen by the "Standstill Agreements" of 1986, are discussed critically. A fourth section deals with the much misunderstood question of the development of the 135 so-called Libyan marginal fields. Discovered largely during the first intensive exploration phase in the 1960s, but sidelined due to the economic, fiscal and strategic priorities of both the Libyan National Oil Corporation (LNOC) and the international oil companies (IOCs), their development is long overdue. Holding an aggregate of around 3.6 billion bbl of reserves, they represent a major Libyan hydrocarbon resource with the potential to significantly boost the Libyan hydrocarbon sector. In the fifth section the author discusses the future direction that the LNOC, the largest company in Libya, will take. Its deregulation and privatisation would signal to the international community the seriousness of the Libyan government in bringing about economic reform, and would be a powerful driver for the Libyan economy, leading to dynamic growth and diversification of the oil, petrochemical, transportation, distribution, marketing and service sectors, in replacing an inefficient monopoly with competitive and market-driven entities.

***Chapter Eight: Future Prospects*:** In one very important respect, based fundamentally on geography, Libya now finds itself in an extremely advantageous position. As the Israel-Lebanese Hezbollah conflagration of September 2006 has emphasised yet again, the Middle East region can be described as a time-bomb. Should any regional escalation involve Iran and Saudi Arabia, the situation has the potential to cripple oil supplies to the West and with it the entire Western economic system. In such a situation, the importance of oil and gas supplies from Libya, far removed from the Arab-Israeli nexus, simply cannot be overestimated. The author concludes, therefore, that for the IOCs, despite the misunderstandings and rancour of the last thirty years, Libya still represents an important target for investment in oil upstream projects. It can be considered by all exploration and development criteria as a virgin country, since extensive exploration and development activities have been carried out since 1955 only in the Sirte basin. This means that most of the country's sedimentary basins are still unexplored. Even if the first three EPSA-IV bidding rounds are taken into consideration, considerable Libyan acreage still remains. In terms of percentage of the total Libyan basin area of 1,382,500 sq km, 31% had been given out for exploration and production by end-2004. After the first EPSA IV round of February 2005 this figure rose to 38%, while after the second EPSA IV round it rose to 43%. After the proposed third round, when 11 onshore areas totalling 72,146 km^2 will be on offer, the figure will rise to approximately 48%. After around 50 years of E&P there is 52% (718,900 Km$^{2)}$ of its sedimentary basins still unexplored.

Appendices: The author provides two extremely valuable Appendices. The first is the full text of the current EPSA-IV contractual agreement between the IOC/LNOC covering 50 pages. The second is a comprehensive table which provides details of exploration drillings from the early exploration period to recent time, covering 44 pages.

Table of Contents

List of Tables

List of Figures

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