

Zohr Giant Gas Discovery – A Paradigm Shift in Nile Delta and East Mediterranean Exploration

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ABSTRACT

The story of Zohr started during mid 2012 when EGAS launched a competitive bid round over 15 offshore/onshore blocks in the Nile Delta. At that time, after more than 40 years of exploration, the Nile Delta plays (mostly clastic and gas-prone) from the HP/HT Oligocene pre-salt to the DHI-supported Plio-Pleistocene post-salt, were creamed. An innovative play was needed to restart exploration and to renew IEOC (Eni's affiliate company in Egypt) exploration portfolio. The opportunity was offered by several blocks on auction located along the Egypt-Cyprus border in deepwater/ultra-deepwater, previously explored during a 12 years period (1999-2011) without commercial success. While looking for the extension into Egypt of the multi Tcf, biogenic gas, Levantine play that had been proven in 2009-2011 in both Israel and Cyprus waters by the Noble-Delek JV (Leviathan, Tamar and Aphrodite discoveries), IEOC explorers identified something profoundly different and yet similar. Instead of the Lower Miocene clastic deep-water sandstones sealed by the overlying shales and Messinian evaporites in anticlinal traps, a structural high linked to the Eratosthenes Seamount crustal block showed geometries typical of a shallow water isolated carbonate build-up immediately lying below the Messinian Salt onto which the Miocene clastics were laterally abutting. Two targets were initially inferred for the Zohr prospect, of Miocene and Lower Cretaceous age in analogy with what found by several ODP cores drilled on the adjacent Eratosthenes Seamount. Zohr-1 discovery well (2015, 1450m WD) was the first to target a carbonate play in offshore Egypt and in the East Mediterranean. It found Miocene and predominantly Lower Cretaceous shallow-water carbonates facies with a total of 654m of continuous vertical biogenic gas column. Subsequent appraisal wells (Zohr-2,3,5) confirmed the initial volumes in place estimated at 30 Tcf. Only two years after the discovery the gas of Zohr will be coming onstream in Q4 2017, a record for a deep-water development project, reshaping the energy scenario of the whole East Mediterranean and providing the O&G sector with a newly discovered play to be further pursued in the area.