

Overview of the Deepwater Geology of the Mexican Gulf of Mexico – Round 1 of Bidding in the Energy Reform

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ABSTRACT

Round one in the energy reform in Mexico associates PEMEX with other operators for the first time. Numerous leads, lessons learned, and prospective resources based upon hydro-carbon systems analysis, seep analysis, and regional seismic studies indicate that the opportunities in Mexico's deepwater basins are large and underdeveloped. This presentation includes a discussion on unlocking these potentially prolific hydrocarbon trends in two primary deepwater areas: the Perdido Fold Belt and the Southern Deepwaters of Mexico.

The Perdido Fold Belt (PFB), is located in the Western Gulf of Mexico, it is a shared structural trend that runs across the US/Mexico maritime boundary. The belt is part of the Cenozoic compressional fold system in the Gulf of Mexico and is distinctive in deformation details and structural style. The PFB contains Upper Jurassic–Eocene age strata folded during the early Oligocene (36–30 Ma), with deformation most likely continuing into the early Miocene. Formed by gravity sliding, the belt consists of a series of southwest-northeast-trending, parallel, megascopic-scale kink bands and flanks that are cut by reverse faults containing Cretaceous to Eocene sedimentary rocks.

The “reservoir” facies are:

- Lower Cretaceous fore-reef carbonate debris analogous to the major productive section in Poza Rica field, Mexico,
- Upper Cretaceous chalks, and
- Tertiary turbidite sands related to Wilcox & Frio delta systems from the Rio Grande embayment and the Rio Conchos, Rio Fernando, Rio Soto la Marina, and the Carrizales and Panuco rivers in Mexico.

The “Southern Deepwaters” is a largely untested trend located in the central to southern region of Mexico's deepwater region. Discoveries thus far have been Miocene in age and containing wet gas. There also exists surface geochemical data for this region. Included is a discussion on the exploration challenges found in deep and ultra-deep waters for Round One Bidding which is scheduled to take place in February, 2015.