

## **Key Regional Evidence for the Next Deepwater Oil Province, the Mozambique Channel**

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### **ABSTRACT**

The Mozambique Channel extends across one-half of offshore East Africa, a deepwater area of 1.3 million sq.km. Nine sedimentary basins and sub-basins occupy this immense region, six of which have Permo-Triassic to Quaternary sections, ranging in thickness from 5,500m. to 11,000m. To date, no wells have been drilled in this deepwater frontier, with the exception of the Rovuma basin, which covers only 5 percent of the Mozambique Channel. In the last 7 years, approximately 38 of 44 exploration wells in the Rovuma Basin discovered an estimated 220 to 240 TCF gas-in-place, in Tertiary and Late Cretaceous sandstone. Of the six dry holes drilled in the Rovuma Basin, four reached Early Cretaceous strata. One dry hole had oil shows in the Cretaceous. Currently, only 15 percent of the deepwater Mozambique Channel, excluding the Rovuma basin, are licensed. This includes six recently awarded licenses offshore Mozambique. It is expected that within the next two years Madagascar, Tanzania and Mozambique will have offshore bid rounds. In consideration of the multiple components of petroleum systems, there is compelling evidence for the existence of an oil-prone petroleum system in several deepwater basins in the Mozambique Channel: Based on at least 35,000 km. of regional 2-D seismic, there is an abundance of major structural trap prospects and leads, within and near the Davie Fracture Zone. The Davie Fracture Zone (DFZ) is effectively a flank of each of five deepwater basins; and extends along the flanks of these basins for 1,700km. Exceptionally thick sections in all the subject basins, could accommodate multiple oil source and reservoir zones. Oil and oil/gas prone source rocks (types: I, II and II/III) have been documented in 26 wells onshore, near the coastal edge of five of the subject deepwater basins. The age of these documented source rocks are: 1) Permo-Triassic, 2) Early Jurassic, 3) Middle Jurassic, 4) Early Cretaceous and 5) Late Cretaceous. Also, it is noteworthy that oil source rock usually improves and thickens basinward. In northwest onshore Madagascar, the Bemolanga tar sands and Tsimiroro heavy oil fields, which have a combined total oil-in-place of 25 billion barrels, were sourced by Permo-Triassic lacustrine shale. In summary, A great range of exploration opportunities associated with the deepwater Mozambique Channel are available today and, undoubtedly, in the near future.