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**Geological Significance, Play Concepts and Hydrocarbon Potential of the Berbice Mega Incised Valley, Offshore Guyana, Guyana - Suriname Basin**

Presence of an active petroleum system and hydrocarbon potential of the offshore Guyana-Suriname basin is supported by the 900 MMBOIP onshore Tambaredjo field and oil and gas shows in most of the offshore wells. The USGS estimated undiscovered resources as 15.2 BBO.

The Berbice mega incised valley is a regional feature controlled by a NE-SW trending Jurassic graben system related to the initial Pangea breakup. Subsequent Albian and Cenomanian global highstands covered the depression with shallow marine carbonates and open marine shales. Restricted circulation favored the deposition of the organic rich (3-6% TOC) Cenomanian - Turonian proven source rock Canje Fm. Oil fingerprinting and maturity models tied the existing fields with the Canje shales. Rapid eustatic falls during the Turonian - Campanian deeply eroded the early shelf and coastal plain deposits creating a mega-incised valley (100 by 20 km). Fluvial - estuarine facies evidenced by channelized seismic geometries are thought to be deposited at this stage above a basal erosional unconformity developed on top of the Canje formation. A detailed seismic interpretation and facies analysis reveal at least four major erosion and filling cycles. Exploration play concepts are related to stratigraphic and combined traps within the first erosional - depositional event that places in direct contact the reservoir prone facies (fluvial channels) and the source rock. At least three prospects with a total unrisked recoverable reserves in excess of 1.1 BBO were identified in the play. The acquisition of 3D seismic in the play area is envisioned as the next exploration stage.