Conventional Petroleum and Coal Bed Methane Resources of the Bowser Basin Region, Northern British Columbia

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The Bowser-Sustut basin, covering >60,000 km^2 in north-central British Columbia, overlies Devonian to early Middle Jurassic Stikinia. Stikinia was accreted to North America in the late Early Jurassic-early Middle Jurassic. Bowser Lake Group (BLG), late Middle Jurassic to mid-Cretaceous clastics, was deposited on Stikinia in response to closure of the Cache Creek ocean. Skeena Group, Early Cretaceous clastics, occurs south of Bowser Basin, in problematic relation to BLG. Mid- to latest Cretaceous Sustut Group occurs northeast of Bowser Basin. On its southwest it overlies deformed BLG, and on its northeast it directly overlies Stikinia. These three clastic successions and Stikinia are deformed in the thin-skinned Cretaceous Skeena Fold Belt that terminates in an untested triangle zone. Structures are dominated by folds with wavelengths of hundreds of metres to 1 km. Competent volcanic rocks in Stikinia can control fold style and scale. Fold hinges trend predominantly northwesterly, but northeast trending domains occur on the west side of the belt. Petroleum potentials assessed previously are significant, recognising several poorly understood risks concerning reservoir quality and petroleum system history. Immense coalbed methane potential also exists. It is essential to re-evaluate petroleum resources using new stratigraphic and tectonic models considering the physical environment, primarily temperature, and temporal relationships among hydrocarbon generation, migration, entrapment and preservation.