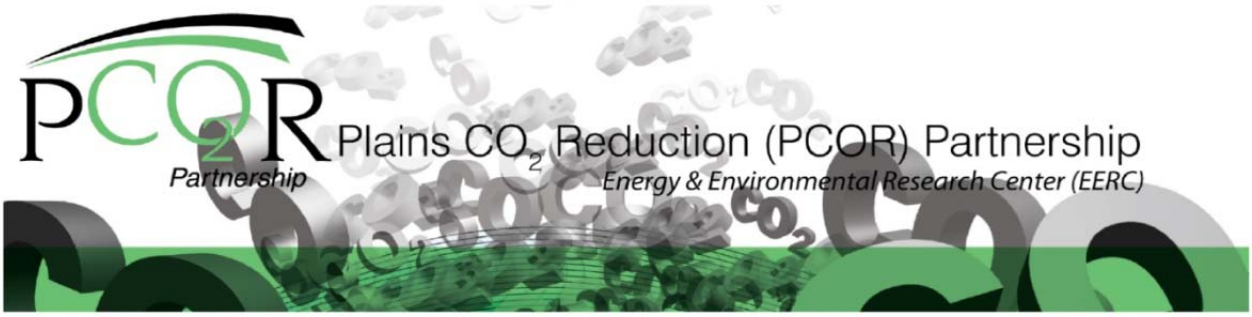

BASAL CAMBRIAN BASELINE GEOLOGICAL CHARACTERIZATION COMPLETED

Plains CO_2 Reduction (PCOR) Partnership Phase III
Task 16 – Milestone M33

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GEOLOGICAL CHARACTERIZATION

Baseline geological characterization of the Basal Cambrian aquifer system in the greater Williston Basin area of North Dakota, South Dakota, and Montana has been completed. These characterization data were compiled in a manner to synchronously develop the 2-D and 3-D models that will be used to derive volumetric storage calculations and dynamic simulations. The characterization effort formally defined the region of interest by the underlying geological framework of the northern Great Plains (Figure 1). The southeastern edge of the study area is demarked by the structural boundary of the Williston Basin along the Sioux Arch. To the west, the beginnings of the Rocky Mountain overthrust belt serve as a boundary. The Big Horn Mountains and the Black Hills are the approximate limits of the study area to the south and southwest. Within this region, nearly 500 wells and the digitization of preexisting maps were integrated to establish the necessary control to identify the base of the Cambrian System as well as the contact with the overlying seal. Reviews of outcrop studies in central Montana were used to fill data gaps with little to no well control. Formations comprising the target layer are locally known as the Deadwood, Winnipeg, Flathead, and Gos Ventre Formations. The thickness of this interval ranges from less than 50 meters to approximately 900 meters. The seal is known predominantly as the Icebox Shale and is 50 to 100 meters thick.

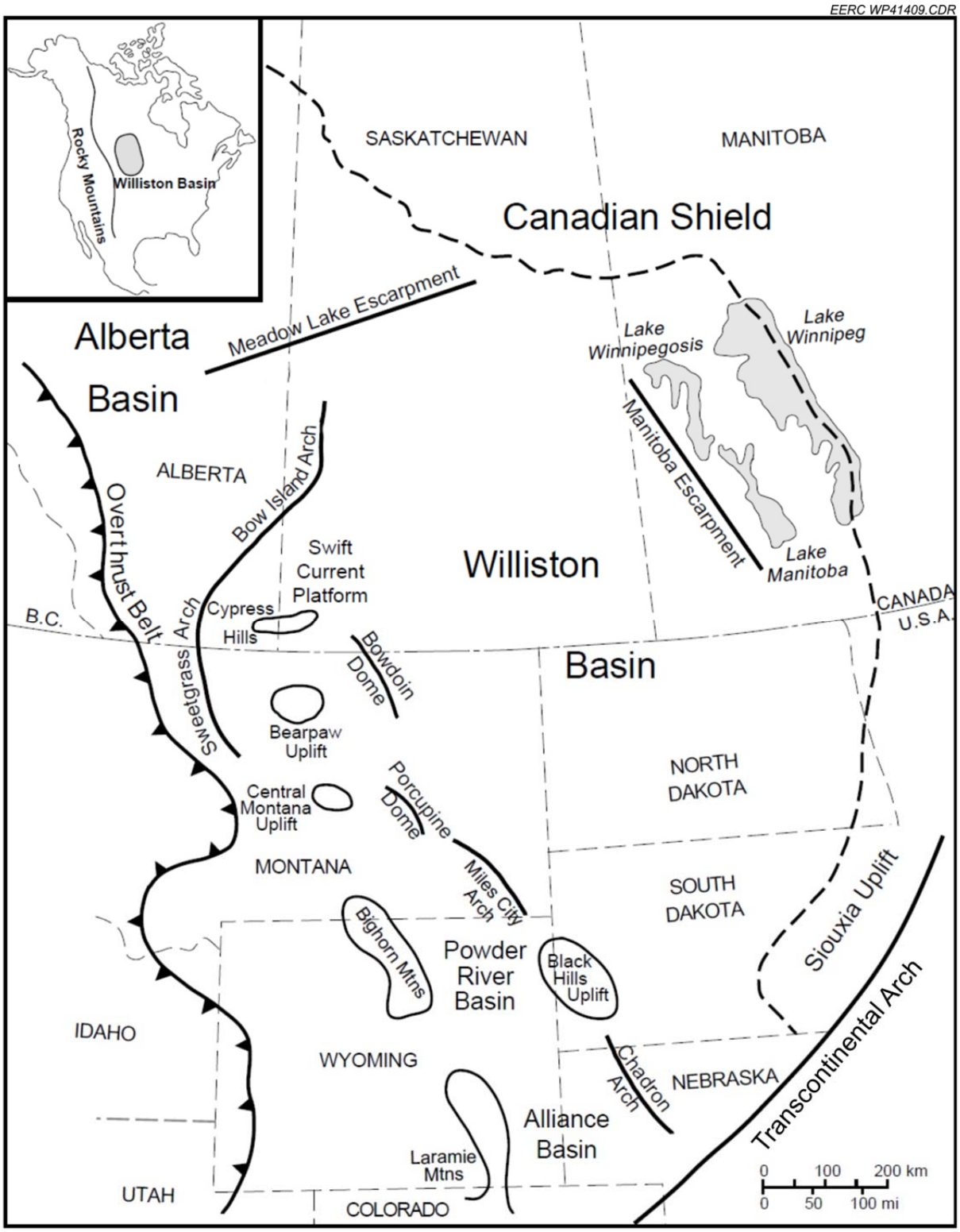

Figure 1. Geological framework of the northern Great Plains.