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Carboniferous-Permian (Late Paleozoic) Hydrocarbon System, Rocky Mountains–Great Basin U.S. Region: Major Historic Exploration Objective

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ABSTRACT

Carboniferous-Permian rocks make up an important closely-related regional hydrocarbon source-reservoir System covering most basins of the Rocky Mountain and Great Basin Region. The System includes oil and gas accumulations in the Williston Basin and Sweetgrass arch areas in Montana and North Dakota: the Bighorn, Wind River, and Powder River basins of Wyoming; the Uinta, Sand Wash, and Piceance basins of northeast Utah and northwest Colorado; the Paradox Basin of the Four Corners area; and the basins of east-central Nevada. More than 400 hydrocarbon accumulations, at least 20 greater than 100 MM barrels each, are present, including Rangely, the largest Rocky Mountain field, and the central Utah partly-eroded Tar Sand Triangle stratigraphically trapped heavy oil and tar accumulation, arguably the largest (probably 30 billion barrels oil equivalent or more) original in-place hydrocarbon accumulation of the United States.

Regional and local detailed palinspastic, stratigraphic, paleotectonic source rock burial depths, and maturity projections aid in geologic analyses of these extensive hydrocarbon deposits. The estimated volume of total original hydrocarbons generated and accumulated in these Late Paleozoic rocks elevates the importance of this System to a major position in the Rocky Mountains-Great Basin oil and gas province.