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Assessing the Economic Potential of Individual Gas Hydrate Accumulations in the Gulf of Mexico Continental Slope

Global estimates of gas hydrate resource are very uncertain. Only a few estimates in specific gas hydrate accumulations have been reported so far. In the Gulf of Mexico, structural gas hydrate accumulations have been cored at water depth ranging from ~ 440 m to ~ 2,400 m. Based on available geological, geophysical, and geochemical data, the volume of hydrate-bound gas in specific gas hydrate accumulations is estimated at GC 184/185, GC 234/235, GB 388, MC 798/842, GC 204, MC 852/853, and AT 425/426 sites in the Gulf of Mexico. These accumulations may contain from 0.017 tcf to 6.4 tcf of hydrate-bound hydrocarbon gases. The gas resources in specific gas hydrate accumulations are comparable with the reserves in very small to giant conventional gas fields. Various geologic, technologic, and economic factors affect the economic potential of specific gas hydrate accumulations in the Gulf of Mexico. The MC 852/853 appears to be characterized by the most favorable combination of these factors, and is suggested to have the highest economic potential. The economic potential of gas hydrate accumulations at GC 204, GB 388, and AT 425/426 sites is ranked as "average". Gas hydrate accumulations at GC 234/235, GC 184/185, and MC 798/842 sites may contain relatively small volumes of hydrate-bound gases, and may have no economic potential. Future gas hydrate exploration should concentrate on the detailed study of large specific gas hydrate accumulations from which gas may be profitable recovered (e.g., the MC 852/853 site).