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Resource Characterization and Quantification of Natural Gas-Hydrate and Associated Free-Gas Accumulations Prudhoe Bay—Kuparuk River Area, North Slope of Alaska

Interim results are presented from the DOE-funded project designed to characterize, quantify, and determine commercial feasibility of Alaska North Slope (ANS) gas-hydrate and associated free-gas resources in Prudhoe Bay Unit, Kuparuk River Unit, and Milne Point Unit areas. BP is collaborating with the University of Arizona, Tucson, the University of Alaska Fairbanks, and the United States Geological Survey to provide practical input to reservoir and economic models, determine the technical feasibility of gas hydrate production, and influence future exploration and field extension of this ANS potential resource.

The large magnitude of unconventional in-place gas (44+ TCF) and conventional ANS gas commercialization evaluation creates industry-DOE alignment to assess this resource. This region exclusively combines known gas hydrate resource presence and existing production infrastructure. Many technical, economical, environmental, and safety issues require resolution before enabling gas hydrate commercial production.

Gas hydrate energy resource potential has been studied for nearly three decades. However, this knowledge has not been applied to practical ANS gas hydrate resource development. ANS gas hydrate and associated free gas reservoirs are being studied to determine reservoir extent, stratigraphy, structure, continuity, quality, variability, and geophysical and petrophysical property distribution. Phase 1 will characterize reservoirs, lead to recoverable reserve and commercial potential estimates, and define procedures for gas hydrate drilling, data acquisition, completion, and production. Phases 2 and 3 will integrate well, core, log, and long-term production test data from additional wells, if justified by results from prior phases. The project could lead to future ANS gas hydrate pilot development.