

Exploration Portfolio Management by Optimizing the Forward Exploration Plan: An Integrated Stochastic Approach

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ABSTRACT

Many companies have forward exploration plans that are designed to satisfy ambitious future production objectives while balancing economic performance and exploration budget as well as rig, facility and drilling capacity constraints. The key element of the forward plan is a schedule for an enumerated sequence of exploration targets - with corresponding wells - to be drilled out over a medium term (typically two or three year) time horizon. This paper presents the integrated approach to forward exploration plans that KOC has adopted. The approach goes from stochastic assessment of in-place and ultimate recoverable resources in exploration targets through an activity-based model of exploration and exploitation of opportunities to stochastic estimates of production, cash flows and economic performance. The workflow requires effective collaboration between geoscientists and engineers where a database with an up to date inventory of assessed opportunities is a key integrating mechanism. Each opportunity is assessed on a stand-alone basis by the exploration teams. The projects are then aggregated with a stochastic simulation tool that assesses the results of the planned schedule for drilling out the whole portfolio of prospects in the forward exploration plan. The approach has been adopted in line with KOC's 2030 Strategic Targets, where Exploration is expected to add production potential. The approach will be outlined with an illustrative application.