

# SEG 100 Conference: Celebrating a Century of Discovery

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## Critical Minerals and the New Energy Enterprise for Oil and Gas and Mining Companies of the 21st Century: Why and How

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Supplying the forecast demand for high-value minerals critical to emerging energy technology will require innovative methods of exploration and production, beyond the current reach and scale of traditional practice. To this end, the oil and gas industry and the mining industry may each, separately and competitively, leverage intrinsic technical competencies or alternatively, by way of strategic partnership become integrated future energy resource enterprises. Disruption and the progress we can make from it has a habit of allowing us to see some barriers rendered obsolete or at least blurred. To this end, importing, cross-skilling and developing new geoscientific capabilities under this concept requires engagement of some geoscience skill sets not usually considered at home in an oil company and likewise for a mining house. Cross-skilling and new team structures are required to enable this approach within the corporation. Additionally, we consider trajectories for corporations within the context of vertical and horizontal integration and modes for corporate evolution within the nonlinear space.

For the upstream oil and gas business the application of play based exploration (PBE) shifted critical focus from the prospect to the play—that is, the entire spatial, temporal, and geological system elements necessary to the conventional or unconventional hydrocarbon accumulation. PBE revolutionised oil and gas exploration, conceptually and commercially, and many features are directly applicable to the exploration for high-value critical minerals and complement the minerals systems analysis approach. In this presentation we discuss PBE for critical minerals including lithium and graphite.

