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Lithium Production Using Wisdom Grounded in Economic Decision Analysis and Cradle-to-Grave Sustainability Standards

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Summary

Stakeholders, investors, and NGOs are interested the total lifecycle impact associated with the extractives industry that make up key components of cleantech infrastructure. Likewise, responsible producers have an obligation to ensure their methods are congruent with modern regulatory systems, novel and evolving science, and the needs of stakeholders.

To deliver high-yield, environmentally sustainable lithium to the exponentially expanding lithium market, a transparent analysis of the lithium extraction, refinement, and waste disposal streams is required. Operators interested in providing lithium to the renewables market can consider enrichment of their value stream through the assessment of complete costs and benefits associated with four key lifecycle elements, namely: (1) establishing meaningful and lasting relationships with key stakeholders; (2) extraction optimization and minimizing project impact including emissions and footprint; (3) effectively and safely managing aquifer properties, and; (4) disposal of waste products in a safe and orderly manner that addresses induced seismicity risks.

These four discussion areas form key inputs to holistic decision making in prospective DLE operations and are the subject of this discussion paper. A lifecycle analysis addressing these elements should be a key input not only as part of pre-application engagement with regulators and permitting authorities, but as a tool of increasing importance for stakeholders to make informed decisions with respect to social licensing and investment. DLE operators are presented with a unique opportunity to leverage lithium extraction technology innovations to not only increase yield and improve efficiencies but also to inspire positive action set a new standard in sustainable development practices. DLE is environmentally compatible with Canadian development philosophies and regulations and may offer a viable solution for the extraction of lithium from petrobrine deposits that host relatively lower concentrations than incumbent operations and deposits in South America and abroad.

This discussion focuses on the lithium lifecycle that falls within the scope managed by DLE operators.