



Mine Power & Decarbonization

Integrating low carbon energy sources into mining operations to reduce emissions while reducing costs and increasing energy independence.

Innovating in all that we do

- Integrating renewable energy into mine power systems is complex and challenging, particularly at high renewable energy penetrations. We de-risk projects with proper planning, equipment selection and power system studies.
- Our power projects are designed with energy storage and utility grade microgrid controllers. Energy resources are strategically hybridized to maximize renewable integration while ensuring power system stability.

Ensuring a cost effective, efficient delivery

- We can help design and oversee the construction of a renewable installation that is financed, owned and operated by a special entity created for that purpose.
- A customized power purchase agreement can be established, allowing renewable energy to be delivered to your company at a price that's less than the levelized cost of the fossil fuels you buy now.
- We remain independent, able to deliver the most appropriate and cost-effective energy solutions available to you.

Wide technical expertise

Hatch has experience working with a wide variety of technologies in both off-grid and on-grid mining settings:

- **Power:** wind, solar PV, solar CSP, biomass, geothermal, SMR, diesel/natural gas plants
- **Storage:** Li-ion batteries, flow batteries, metal-air, pumped hydro
- **Heat:** thermal battery, heating electrification, waste heat recovery
- **Fleet fuel generation:** hydrogen, ammonia, biomass gasification, EV charging

Services provided at all stages of projects, investments, operations, and transactions

- Strategic Advisory & Business Planning
- Concept & Technology Screening
- Feasibility Engineering
- Permitting & Community Engagement
- Detailed Engineering
- Procurement & Construction Mgmt.
- Commissioning & Ramp Up
- Operation & Maintenance
- Performance Optimization

PROJECT EXPERIENCE

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Hydrogen for 100% Renewable Mining

DeBeers Group, Canada



Hatch completed renewable power options and energy storage studies to evaluate the technical feasibility and business case of a 100% renewable power system for the Chidliak mine. Hatch conceptualized a unique closed-loop hydrogen fuel cell and heating system that would work alongside renewable power generation.

Teck Red Dog Power Alternative Study

Teck Resources Ltd., USA



Teck was looking to alternative power solutions to reduce the GHG emissions of the diesel-powered Red Dog Mine. Hatch conducted an alternative power options study that involved framework development, technology reviews, GHG emission reduction estimates and economic assessments.

Renewable Power & Decarbonization Portfolio Study

Vale, Canada / Indonesia / Brazil



Hatch was engaged by Vale Base Metals to conduct a renewable power and decarbonization study across 17 mining projects in Canada, Indonesia, and Brazil. The study included establishing energy and GHG emissions baselines, reviewing regulatory requirements, and identifying low-carbon opportunities such as renewable power, battery storage, alternative fuels, grid interconnection, and mine electrification. Hatch evaluated the technical and economic performance of these options, developed marginal abatement cost curves, and defined decarbonization pathways to support Vale's emissions-reduction commitments.

Raglan Mine Wind-Storage Phase 1 & 2

Glencore Raglan Mine, Canada



In a first-of-a-kind facility, Hatch installed 6 MW of wind power, 200 kW of hydrogen energy storage, 200 kW of flywheel storage, and 3.2 MW of battery storage across two project phases. Hatch was involved in the conception, engineering, commissioning, and operational monitoring of the project, providing a full-suite of project services. Hatch's proprietary microgrid controller (HμGrid) played a critical role in monitoring wind turbine health and smoothing out wind power variations to ensure power system stability.

Freeport Morenci Battery Energy Storage

Freeport McMoRan, USA



Hatch supported Freeport McMoRan Morenci Inc., through Freeport Minerals Corporation (FMC), in Phase 1 of the MILESHIGH Project at Freeport Minerals Corporation's Morenci Mine. Hatch's scope includes grid performance assessment of the Morenci Mine load classification, infrastructure evaluation, and development of a 30% engineering design for a 200 MWh BESS. The project aims to transition the mine's 300 MW industrial power system into a resilient microgrid with improved reliability and control. Hatch's scope of work included a Site Visit and Infrastructure Audit, Engineering Scoping Study, 30% Engineering Design, Cost Estimate, and Execution Schedule with Constructability Review.

Freeport Copper Skies

Freeport McMoRan, USA



Hatch is serving as Owner's Engineer for Freeport's Copper Skies project in Arizona, which includes a 200MW solar facility and a 200MW/800MWh BESS. Hatch provides ongoing technical advisory and project oversight services throughout project development and execution, coordinating across multiple stakeholders.

Ring of Fire Power Technology Screening

Wyloo, Canada



Hatch performed a technology screening to select the optimal power technologies for the mine and hauling fleet. In-scope technologies included small modular reactors (SMRs), geothermal, natural gas, ammonia, hydrogen, hydro, solar, wind, battery storage, pumped hydro storage, biomass and renewable diesel. A GHG reduction emission analysis was subsequently developed to rank and compare the different technologies.

Looking for more information?

Contact us!



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