Electrifying your mine also improves the world beyond it.
Cellphones, electric vehicles, batteries, wind farms...virtually every aspect of modern life relies on the ores mined from the earth. But that same industry accounts for up to 7% of all greenhouse gas emissions. This at a time when the Paris Agreement and national regulations are calling for emission reductions. Current methods aren't as efficient as they can be. And they come with an extremely high energy cost.

The energy needs of the modern mine simply cannot be sustainably met with diesel machinery alone. There must be a transformation. And ABB is committed to working with mines to bring about that transformation.


Mining is essential for a sustainable world.

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Mining accounts for up to 7% GHG emissions.
At ABB, we care as much about the health, safety and well-being of our environment as we do for the people who inhabit it. To that end, we embed sustainability into everything we do. We are partnering with our customers to reduce their annual CO₂ emissions by 100 megatons by 2030 — equivalent to the annual emissions of 30 million combustion cars — and we will achieve carbon neutrality in our own operations by that date.

We are committed to a more sustainable future for mining.

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What does that mean for your mine?
There are many reasons to transition to an all-electric mine. And just as many elements to consider before you begin the journey. ABB not only understands these requirements, we can also equip you to meet them.

We know what it takes to build an all-electric operation.

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Drivers for the all-electric mine
Electrifying your mine, like mining itself, is a process. Based on industry expertise and deep experience, our team understands the challenges facing you as you consider transitioning to all-electric. But understanding is only half the battle. eMine™ makes the all-electric mine possible with a purposeful approach, proven methods and integrated electrification and digital system solutions from mine to port.

Introducing ABB Ability™ eMine.

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ABB Ability™ eMine. For your world, and mine.
Broad portfolio. Deep expertise.

ABB Ability™ eMine can electrify your mining equipment, from pit to port and mine to market. Our fit-for-purpose solutions are designed to meet the operational demands of the modern mine, and they’re backed by ABB’s decades of real-world experience in electrifying, automating and digitally connecting mine equipment and operations. Plus, with eMine™ you get a single ABB team that can be with you through all of the phases of transitioning to an all-electric mine.

Your mine, electrified.
One team.
Layers of expertise.

ABB has a dedicated Product Management and R&D organization focused entirely on the mining industry. The group develops and maintains dedicated software, hardware and service products based on ABB's digitalization, automation and electrical platforms, ensuring state-of-the-art and best-fit technology for mining applications, while supporting the lifecycle and evolution requirements of mining operations.
All-electric mine requires all working together.

The time to change is now. But the mining industry is clear that when it comes to electrification, nobody can make it alone. Partnerships and co-creation of solutions with OEMs, other mining companies and governments are needed to successfully integrate electrification in mines. We are working with OEMs to fast-track the development of new emissions-reducing systems with electrification and automation of the whole mining operation the goal.

Our joint development and co-creation approach leverages the domain expertise of key partners to meet a wider range of needs:

- Mining Company
- Mechanical
- Infrastructure and Civil
- Vehicle OEM or Retrofitter
- Mine Designer

ABB Ability™ eMine. For your world, and mine.
Early engagement is the key.

An all-electric mine looks a lot different than a traditional one. Your ABB team will partner with you during the earliest stages – pre-planning and design – which will help increase added value, provide greater costs savings and reduce complexity. By getting in early, we can provide interoperable, fit-for-purpose solutions and technologies that make mines safer, smarter and reduce carbon emissions. Doing so lets us integrate electrification and automation through ABB digital applications. By integrating the whole mine digitally, we are set up to plan, monitor and control processes, optimizing operations and energy usage. We can even streamline production after the operation is up and running.

ABB Consultancy Services
Make our expertise yours.

Your ABB team will work with you to develop an integrated design leveraging domain knowledge and our own anchor products.

- Optimized solutions and trade-offs (e.g., hoist vs. conveyors vs. trucks) considering geology and operations
- Integrated electrical solutions considering load peaks based on duty cycle, harmonics, voltage dip mitigation and network protection
- Combined digital, automation and electrification solutions, also considering existing systems and leveraging partners
- Identification of correct technology for applications, considering energy efficiency and environmental impact
- Focus on early solution standardization
Solutions made for the unique challenges of today’s mines.

Building on decades of mining project electrification experience and expertise, and over 10 years’ experience in providing charging infrastructure for buses, trucks and cars, we are able to offer solutions that are uniquely designed to handle the requirements of the mining industry based on latest technologies. And by integrating these solutions with automation and digital systems, we are set up to plan, monitor and control processes, optimizing operations and energy usage from grid to wheel.
Solutions made for the unique challenges of today’s mines.

Building on decades of mining project electrification experience and expertise, and over 10 years’ experience in providing charging infrastructure for buses, trucks and cars, we are able to offer solutions that are uniquely designed to handle the requirements of the mining industry based on latest technologies. And by integrating these solutions with automation and digital systems, we are set up to plan, monitor and control processes, optimizing operations and energy usage from grid to wheel.
Today's trolley technology – based on diesel hybrids – will evolve and transform into battery-trolley hybrids over time. ABB's trolley system is the perfect technology for supporting this trend and helping you transition to an all-electric mine. Built on decades of electrification experience and expertise, ABB Ability™ eMine Trolley system can reduce your diesel consumption by up to 90%, lowering your energy costs and your environmental impact at the same time. Plus, electrified trucks run at a higher speed and provide better speed-on-grade. The trolley system is best for heavy-duty vehicles and needed for inclined hauling – which battery-only solutions are not yet capable of.

Benefits of the trolley
ABB Ability™ eMine Charging Systems

A key component to keeping the all-electric mine running is making sure the equipment can perform when it needs to and the trucks can charge when they need to. ABB provides charging solutions designed to fit the needs of today's mining operations and interface with all vehicles. We are vehicle type and OEM agnostic, supporting an interoperable approach based on proven standards that can provide any sort of solution needed to charge BEVs.
Electrification challenges, meet ABB Ability™ digital solutions.

Through the ABB Ability™ MineOptimize portfolio, we are able to bring together electrification, automation and digital technology like no other company. By digitally connecting all of our solutions, they can be monitored and controlled to optimize operations and energy usage in real time.

Power & process control

Power & energy management

Electrical asset performance management

Mine operations management
Once we get you up and running, we keep you that way.

ABB services are tailored to the specific challenges of our customers. Through our advanced digital services, our mining experts can monitor your plant remotely, 24/7, to help keep your production up and running. Advanced digital mining services can collect and analyze your mining asset and operational data, providing remote expert support to identify, categorize and prioritize actions. And once you have invested in ABB mining equipment and solutions, we do everything to help you protect your investment – with an extensive training program to continuously improve staff expertise.

ABB acts as single source supplier with global integration experience for electrical, instrumentation and control. This provides a fast-track way of moving mines from costly and reactive time-based maintenance to planned preventive and predictive interventions. Through remote services, predictive maintenance and upgrades and retrofits, ABB helps mining companies ensure maximum performance throughout the mine's lifecycle.

Rapid Response
Guaranteed fast and flexible service response to maximize equipment availability.

Lifecycle Management
Provides power tools and our knowledge base to optimize and extend equipment life.

Performance Improvement
Increased productivity through usability and efficiency optimization of equipment and processes.
Transitioning to an all-electric mine is going to take new thinking. New plans and designs. New training for your workers. And a whole new outlook on your operation.

It is not a simple task. The required technology is still relatively new and constantly developing, and the operational figures and geographical structure of each mine is unique. It typically requires comprehensive analysis to study different technological alternatives to achieve the best, most viable design for your all-electric mine.

ABB is perfectly positioned to help with that goal. With our deep and rich experience in the mining industry, we will do more than transform your mining operation. We will help transform the world beyond it.
ABB Ability™ eMine. For your world, and mine.

Let’s work together to create sustainable progress for the mining industry, and the earth it relies on.

Let’s get started.