



Customer insights

Thinking big: Trolley-assist to help Copper Mountain Mine meet ambitious sustainability goals

Our customers are our best teachers, and when it comes to sustainable mining, few know the subject better than Don Strickland, EVP of Sustainability at B.C.-based Copper Mountain Mine. Through a partnership with SMS Equipment, Komatsu and others, Copper Mountain is leading a first for Canada – the installation of a trolley-assist system to increase the range and workload of electric mining vehicles. This will be key to top the company's goal to reach net-zero greenhouse gas emissions (GHG) by 2035.

Recently, we had a chat with Don, and he shared his story and his vision for the future of Canadian mining.



Don Strickland - Executive Vice President, Sustainability for Copper Mountain Mining Corporation

"It's going to be an exciting time, and we're going to see many things happen. I'm excited about our partnership with SMS Equipment, Komatsu, ABB, Clean BC, and BC Hydro. We're all working together towards getting results, sharing results, and building on them. This sets the stage for the future for sure."

SMS Equipment: Don, tell us about your background, and how you got into the EVP sustainability role.

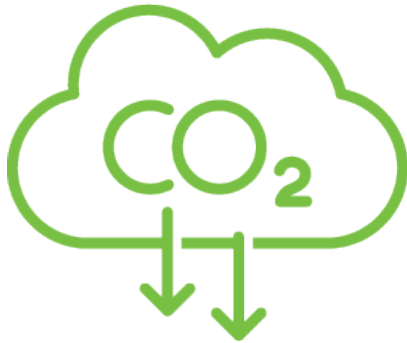
Don Strickland: My role was born at a strategy session earlier this year. We recognized that sustainability is an evolving area and a significant priority for us, and we were doing a lot of great things in that area. However, because of my responsibilities as Chief Operating Officer, I couldn't give this the needed attention. So, we adjusted the structure of the company so that I could focus on sustainability.

SMS Equipment: Trolley-assist is no small undertaking. How did the company get to the point of making such a commitment?

DS: Initially, we were looking at fuel costs. Diesel is between our second and third largest cost for the site, and it's also quite variable. So, we were looking for ways to manage that cost. And then, once we started looking at our greenhouse gas emissions (GHG), it made sense to start looking at electricity when we were going out for the tender on new trucks.

It was around the same time that we really started focusing on our emissions as a corporation, and at that point, we realized that we needed to make a meaningful change. And one of the ways to do that is trolley-assist.

Improving GHG emissions and lowering your cost per ton



Reduce CO₂ emissions



Burn **70%** less fuel



Travel uphill nearly **2X** faster

SMS Equipment: Where does the project stand today?

DS: As of November 2021, we are currently installing trolley lines on a one-kilometre section of our roadway. It's a straight run and a fairly straightforward installation. Once that's up and running, and we get used to it, we'll start testing corners and seeing how much of the operation we can convert to trolley.



Project visualization for Copper Mountain's ~1 km installation for trolley-assist in the main pit that will be used to transport ore to the primary crusher.

SMS Equipment: Are there past projects that you've learned from?

DS: Trolley's been around since the 1980s; it has some history of success and some history of failure. But what we're doing is a first for North America. So, the decision to move ahead wasn't like buying a new truck or buying a proven technology. It was making a commitment that we will work with partners to make it successful.

When you're facing a learning curve like this, you need to be partnered with like-minded organizations that are going to work with you to make the project successful. The people at SMS Equipment have been a key part of that.

There's also been a full focus with Komatsu on changing the design of their trucks to make them more robust in winter climates. Another important partner is Asea Brown Boveri (ABB), which designed the trolley wiring system based on an installation at the Aitik copper mine in Sweden.

SMS Equipment: What are Copper Mountain employees saying about this?

DS: Initially, it's been hard for people to see progress because there haven't been visual signs yet. By contrast, with our reclamation projects, they can see visible evidence, such as grass growing on rockfaces. That said,

with pantographs showing up on the trucks and the power lines going up, people are starting to see that we're doing something to fight climate change. Once we get our first truck on the line and people can see how it works, I think people will get excited.



Copper Mountain is committed to building an inclusive, diverse workforce where employees feel empowered and have a sense of belonging.

SMS Equipment: What are your recommendations for other companies that are looking at sustainable mining?

DS: You need to start by gathering your data and getting it down on paper. Then you can start asking what the data says, and what you can do about it. Overall, it's about creating a learning process to realize what you don't know and how you can improve further.

For example, one of the key datapoints for us is that BC Hydro has a very low carbon footprint, which has a huge impact and will be vital in meeting our pledge to reach zero GHG by 2035.

SMS Equipment: What's your vision for the future of sustainable mining in Canada?

DS: Things are changing, and they're changing very rapidly. As an industry, we've been innovating for years, and now we're applying that innovation skill set to take up the challenge of fighting climate change. This year at MinExpo, it was fascinating how many mining companies focused on reducing GHGs.

The market is changing quite a bit as well. People are looking for responsibly mined products - copper is one of those - and are willing to pay a premium for a low-GHG product. I expect that to increase in the future. It will encourage people to do the right thing and reduce their carbon footprint.

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with SMS Equipment, Komatsu, ABB, Clean BC, and BC Hydro. We're all working together towards getting results, sharing results, and building on them. This sets the stage for the future for sure.



The advantage of trolley-power is that the electrical power drawn to move the haul truck is generated from a cleaner source than the diesel engine while also improving fleet productivity.

Next Steps: Let our experts help assess how trolley-assist and other mining solutions can help meet your GHG reduction requirements and lower your mobile fleet's total cost of ownership.

