

Vale advances its green energy vehicle program

Just over two years ago, Vale made an ambitious commitment to reduce carbon emissions associated with the mining, processing and ultimately, the use of our products. The Company committed to reduce greenhouse gas emissions by 33 percent by 2030 and to be net-zero by 2050. Vale's energy target is to consume 100 percent of electricity from renewable sources globally by 2030.

This is a tall order and one that we are embracing by dedicating resources to measuring our footprint, studying our alternatives and ultimately, creating a plan to execute on technologies and changes to our operations aimed at increasing energy efficiency and reducing carbon. These efforts will ensure that Vale remains a choice supplier of the products necessary to help transform the future.

One area where Vale has made exceptional progress is the introduction and use of green energy vehicles or GEVs. Currently, 46 green energy vehicles are operating in our underground mines in Canada. 38 of these vehicles are battery electric. GEVs, in this instance, encompass equipment that use "green technology," which includes tethered, battery, trolley, hybrid, and other technologies. It also includes 8 trolley-electric haulage trucks that have been operating at our Coleman and Creighton mines in Sudbury, Ont., since the 1990s.

Vale operations benefiting from the GEVs include Manitoba's Thompson Mine as well as Sudbury's Creighton, Coleman, Garson and Copper Cliff mines. The largest fleet is being piloted in the deepest parts of Creighton mine where

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miners are being transported from site to site in battery-electric personnel carriers and operations are supported by service and utility vehicles such as battery-electric boom trucks, explosives carriers, bolters, and development drills as well as 8 yard LHDs (Load-Haul-Dump) and 42 ton haulage trucks.

Deep mining presents heat and ventilation challenges and the expectation is that these GEVs will facilitate operations in these conditions. Vale aims to learn from these GEVs by collecting vehicle performance data and measuring the impact on air quality and noise levels in the workplace. Employee feedback is also being sought while various vehicle drivetrain technologies, battery chemistries, charging methods and operation schedules get a critical review.

“Clearly more than just reducing diesel fuel use, our green energy vehicle program has the very real potential of improving workplace conditions, supporting our carbon reduction commitments and providing the critical data necessary in designing the mine of the future,” says Alex Mulloy, a Vale engineer and low carbon specialist.

Vale will continue to focus on reducing its carbon footprint by investing and studying existing and emerging technologies and learning from the successes and challenges in the innovative carbon reduction efforts being applied across its global operations. Together, we will create a future that is safer, greener, cleaner and healthier.



This Epiroc MT-42 is just one of the fleet of battery electric vehicles Vale has deployed at its Creighton mine. The truck, a flagship vehicle for Vale's GEV program, with its unique paint colour signifies the company's commitment to going 'green'.