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Vale is the first mining company, among the big players in the sector, to test 100% electric 72-tonne trucks

Vehicles will be used in the operations in Minas Gerais and Indonesia, and represent another step in the electrification of the company's assets, which has announced a goal of zeroing its net carbon emissions by 2050

Vale received two battery-powered 72-tonne off-highway trucks, which will be tested in the mines of Água Limpa, in Minas Gerais, and Sorowako, in Indonesia. The first electric trucks to be used by a global mining company do not emit CO₂, since they replace diesel with electricity from renewable sources, and they also reduce noise, which minimizes the impacts on the communities that live near the operations. The equipment, which was produced by XCMG Mining Machinery Co. Ltd., a subsidiary of Xuzhou Construction Machinery Group Co. Ltd. ("XCMG"), the largest machine manufacturer in China, represent another step in the electrification of the assets owned by Vale, which, in 2019, announced net zero carbon emissions (scopes 1 and 2) goal by 2050. For this purpose, it shall invest between US\$ 4 billion and US\$ 6 billion.

The 72-tonne electric off-highway trucks, model XDR80TE, are part of the PowerShift program. Their batteries are able to store 525 kWh, allowing them to operate for up to 36 cycles along the established route, just over a day of operations, without the need to stop and recharge and with the possibility of regenerating energy during descents, reducing the use of mechanical brakes, maintenance work and vibration, in addition to providing more operational comfort to drivers. The machine has a multiple temperature control technology allows it to adapt to high temperature, humidity and rainy working conditions, and to have excellent performance even in extremely cold, high altitude and harsh weather conditions.



The 72-tonne electric truck in operation in Indonesia (Vale copyright)

"To us, this partnership with XCMG is another important step in our long-term relationship with China and towards more sustainable mining. Our goal is to expand, together with global partners, the development and co-creation of technologies that respect the environment and zero out emissions", highlights Alexandre Pereira, executive vice-president of Global Business Solutions at Vale.

Dr. Hanson Liu, the Vice President of XCMG Machinery and General Manager of XCMG Import & Export Co., said, "XCMG and Vale have reached a consensus on the green development concept of dedicating to low-carbon mining and realizing net zero emissions. The delivery of XCMG's latest pure electric mining truck XDR80TE at this time is a manifestation of the joint efforts of both parties on promoting global environmental protection as well as green and sustainable economic development."

Currently, emissions from off-highway trucks running on diesel represent about 9% of Vale's total scope 1 and 2 emissions.

Emission reduction

The Powershift program was created by Vale with the aim of replacing fossil fuels with clean sources in its operations. The program is promoting innovative solutions to electrify the company's mines and railroads. In addition to the 100% electric truck, Vale's strategy for the electrification of assets also includes the operation of battery-powered locomotives in the yards of the ports of Tubarão, in Vitória, and Ponta da Madeira, in São Luís. In Canada, the Powershift program has also led to tests with electrical equipment in underground mines – there are currently about 40 that are currently operational.

Vale's operational equipment electrification strategy also includes a partnership with its peers BHP and Rio Tinto. Last year, the three companies, along with 17 other mining companies, launched the "Charge On Innovation Challenge", a global open innovation challenge with the goal of finding innovative solutions to accelerate the safe charging of batteries for future electric off-highway trucks.

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