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Vale expands test of 100% electric locomotives

Company receives second battery-powered equipment, which will operate in the switchyard of Ponta da Madeira Terminal (MA)

As part of the strategy of accelerating the use of technologies that favor renewable sources, Vale received at the end of April its second 100% electric locomotive, powered by battery. Manufactured in China by CRRC Zhuzhou Locomotive (CRRC ZELC), the equipment will initially operate in the Ponta da Madeira Terminal's switchyard in São Luis (MA). Its batteries, made of lithium, have a storage capacity of 1000 kWh, with autonomy to operate up to 10 hours without stops for recharging.

Landing of the electric locomotive at the Port of Itaqui (MA) in April. Credit: Vale

The CRRC locomotive is part of Vale's strategy to electrify its mine and railroad equipment. The two areas account for 25% of the company's direct carbon emissions, the so-called scope 1. In 2019, Vale announced the goal of zeroing its Scope 1 and 2 net emissions (relating to electricity consumption) by 2050. To that end, it is investing between US$ 4 billion and US$ 6 billion.

Currently, Vale's fleet totals 490 locomotives, powered by diesel, dedicated to the transport of iron ore. The company's first all-electric machine, manufactured by Progress Rail, was received in July 2020 at Vitória-Minas Railroad (EFVM).

“As happened in Espírito Santo on the Vitória-Minas Railroad, our strategy is to test it in switchyard and then evaluate the possibility of re-adapting it as part of the subsequent strategy of using electric locomotives on the main line of the railway” , explains Gustavo Bastos, executive manager of the Ferrous Center of Excellence, Technology and Innovation.

According to the executive manager of the EFC, João Silva Junior, the electric locomotive is a plus for the railroad's strategy of investing in efficiency, safety and innovation, which aims to reduce its carbon emissions. The executive recalls that, last year, the railroad obtained one of the best environmental assessments among its peers, according to the National Agency of Land Transport (ANTT).

“The arrival of the electric locomotive at EFC is an important milestone for Vale's Zero Carbon journey. We are building a robust plan that will allow us to drastically reduce CO2 emissions from our rail operations. We are increasingly reaffirming our commitment to a more sustainable Vale,” he says.

The new equipment will go to the terminal's locomotive workshop, where it will stay for 90 days for system verification and testing. The first test in the switchyard is scheduled for July.

The equipment will stay in the locomotive workshop for verification and testing of systems before going into operation in the port's switchyard yard. Credit: Vale

Powershift

The two 100% electric locomotives are part of Powershift, a program created by Vale to meet the company's challenge of zeroing scope 1 and 2 carbon emissions. In addition to locomotives, the program has also carried out tests with electrical equipment in underground mines in Canada – there are currently around 40 in operation.

Vale's operational equipment electrification strategy also includes a partnership with its peers BHP and Rio Tinto. Last year, the three companies, together with another 17 mining companies, launched the “Charge On Challenge”. It is a global call for innovation aimed at entrepreneurs capable of developing solutions for electrifying large trucks used in mines.

More information

Media Relations Office
imprensa@vale.com
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