



SAVING EMISSIONS THROUGH THE USE OF HYDROGEN FUEL CELL-POWERED LARGE MINING TRUCKS

Using fuel cells in large mining trucks will eliminate all emissions associated with diesel trucks today, reduce continuous noise pollution, and result in lower energy intensity compared to diesel.

Anglo American has partnered with global energy company Engie which is providing the hydrogen generation and refuelling station, while Anglo American has been developing the world's first hybrid hydrogen-powered fuel cell 800kW mine haul truck (using some 130g of platinum). The aim is to modify vehicles by replacing diesel (4,500-litre tanks) with hydrogen tanks and replacing engines with hydrogen fuel cells and battery packs.

The prototype single hydrogen-powered haulage truck is being developed and, once site equipment is assembled at Mogalakwena Mine in 2021, a testing and validation phase will be conducted in 2022 before the project is scaled up.

The new power plant module will be able to deliver more power than the diesel engine installed today, enabling it to power a fully-laden truck up the slope from the mine; and then capture energy from the wheel motors on the return journey.

At Mogalakwena, the company is building a 3.5MW electrolyser to produce green hydrogen on site for use as fuel instead of diesel. This will be supported by a solar field on the same site,



Anglo American Platinum Limited is a member of the Anglo American plc Group and is a leading primary producer of platinum group metals. The company is listed on the Johannesburg Stock Exchange (JSE). Its mining, smelting and refining operations are based in South Africa. Elsewhere in the world, the Group owns Unki Platinum Mine in Zimbabwe.

Anglo American Platinum has a number of joint ventures with several historically disadvantaged South African consortia as part of its commitment to the transformation of the mining industry. Anglo American Platinum is committed to the highest standards of safety and continues to make a meaningful and sustainable difference in the development of the communities around its operations.

Case Study

with site works started in August 2020. Mechanical completion and first hydrogen production are scheduled for early 2022.

The combination of renewable power and green hydrogen-powered haul trucks could reduce current levels of CO₂e emitted by 50% to 70% at the company's mine sites (scope 1 and 2 emissions) and could be applied across Anglo American's fleet.

In addition to potentially eliminating diesel consumption in the wider group and reducing GHG emissions in Anglo American's mines, the initiative also means cleaner air for employees and communities, reduces noise and vibrations, and generates maintenance savings.

The use of PGMs in Hydrogen Technologies

