Anglo American and the EU Hydrogen Economy

Introduction

Anglo American is a FTSE-listed global diversified mining company with a portfolio that spans crop nutrients, platinum group metals, copper, nickel, iron ore, steel making coal and, through the De Beers Group, diamonds. Our portfolio of world-class assets produces the metals and minerals needed to power a cleaner, greener, more sustainable world. Our metals are the essential ingredients in smartphones, electric cars and wind turbines, and our basic materials build homes, offices, railways, and airports that help form the backbone of today's economy as well as the foundations for the future

Anglo American's Purpose, re-imagining mining to improve people's lives, guides everything we do as a business. One of the ways we are bringing our Purpose to life is through FutureSmart Mining™, our innovation-led approach to sustainable mining. Technologies and digitalisation will fundamentally change how we mine, process, move and market our products.

In line with our Purpose, we are committed to being a part of the global response to climate change – both because it is right for the long-term sustainability of our business, and the right thing for society. We recognise that the world cannot decarbonise without many of the metals and minerals that we produce. We recognise that we must do what we can to minimise the emissions related to the supply of those products as quickly as we can and we also accept the role we must play in supporting the decarbonisation of our value chains and sourcing responsibly through ethical value chains.

By 2030, we have set ourselves a target to reduce GHG emissions (Scopes 1 and 2) by 30% against a 2016 baseline; improve energy efficiency by 30%; achieve a 50% net reduction in freshwater abstraction in water scarce areas; and deliver net-positive impacts in biodiversity wherever we operate. To these, we added a target to be carbon neutral across our operations by 2040 and, in 2021, our ambition to reduce our Scope 3 emissions by 50%, also by 2040.

Sustainable Sourcing

Our Sustainable Mining Plan, launched in 2018 and integral to our FutureSmart Mining™ programme, is built around three major areas or Global Sustainability Pillars, which are designed to support the UN's Sustainable Development Goals.

- **Healthy Environment** – maintaining a healthy environment that uses less water and delivers net-positive biodiversity outcomes, ultimately moving us closer to our vision of carbon neutral mining.
- **Thriving Communities** – building thriving communities with better health, education and levels of employment.
- **Trusted Corporate Leader** – developing trust as a corporate leader, providing ethical value chains, policy advocacy and improved accountability.

The plan sets out our commitment to stretching goals – driving sustainability outcomes through technology, digitalisation and our innovative approach to sustainable economic development. There are numerous examples across our business of our progress towards these goals – for example, our **Woodsmith crop nutrients project** in the United Kingdom is setting new standards for mining through a mix of innovative technological solutions and **sustainable practices**, aiming to achieve an overall net positive impact for biodiversity.

We work closely with our customers when it comes to sourcing responsible materials. We are targeting all of our mining operations to be audited against recognised responsible mining certification systems by 2025. To date, seven Anglo American managed operations have either completed the **Initiative for Responsible Mining Assurance's (IRMA) 'Standard for Responsible Mining'** assessments or are in the process of being assured by an independent third party: Unki; Mototolo Concentrator; Amandelbult; Kolomela; Sishen; Minas-Rio and Barro Alto. In addition, at least fifteen De Beers entities have undergone the **Responsible Jewellery Council certification** and we have adopted the Copper Mark certification at Los Bronces and El Soldado while they await being assured against IRMA. IRMA's Standard for Responsible Mining has been developed over ten years through a public multistakeholder consultation process with more than 100 different individuals and organisations, including mining companies, customers, downstream users, NGOs, labour unions, and communities.

Our contribution to a sustainable hydrogen economy

At Anglo American, we believe that low carbon hydrogen has a significant and wide-ranging role to play in the energy transition. Most notably, it has the potential to support the decarbonisation of transportation, heat, and power, hard-to-abate industrial and agricultural processes, and as an energy carrier, it can enable the development of renewables-based power generation systems.

As a result, we have been an early supporter of the global movement advocating a hydrogen economy, recognising its role in enabling the shift to greener energy and cleaner transport and its potential to support the decarbonisation of our own operations. Given the critical catalytic role that our platinum group metals (PGMs) play in many technologies that are necessary for clean hydrogen production and hydrogen fuelled transportation, Anglo American has been investing in technologies that will help hydrogen to deliver on its potential.

Our policy interests in Europe

The EU's Green Deal is setting an extremely ambitious framework for the decarbonisation of the EU economy that will have repercussions for businesses around the world, including the mining sector. The EU's Hydrogen Strategy is a promising initiative, which we seek to support through our membership in Hydrogen Europe. We are also collaborating with hydrogen producers to ensure a stable supply of platinum and supporting efforts to optimise the amount of PGMs used in catalysts and electrolysers.

"Fit for 55" package

Anglo American supports the general framework of the "Fit for 55" package, in particular the 2030 target to reduce carbon emissions by 55%, as well as the overall framework and the various sub-targets. For the **decarbonisation of transport**, we believe it is critical that the European Union continues to pursue its technology neutral approach, not only betting on battery electric vehicles (BEVs) but also enabling the uptake of hydrogen-powered fuel cell electric vehicles (FCEV) – given that the overall **environmental impact** of both technologies is not clear, but other factors also play a role such as availability of critical raw materials (which differ between the technologies).

Both technologies have zero tailpipe emissions, but their respective carbon and environmental footprints are far more difficult to measure. While BEVs are more efficient, using less electricity per km than FCEVs, they also require more raw materials. This means higher environmental costs for the manufacturing of BEVs when looking at metrics such as energy intensity and water usage for minerals extraction and ease of recycling at the end of their lifecycles.

In order to ensure the viability of zero emission transport systems, we need to consider the long-term **availability and recyclability of raw materials**. A transport system that relies fully on BEVs will increase the dependence on a small number of raw materials and reliance on the electricity grid. For example, a recent study estimates that, in order to reach the ambitious EU climate targets by 2050, the demand for lithium will increase by over 2000%, cobalt by over 400% and copper by over 50%. The deployment of FCEVs will diversify the required raw materials and the recycling of end of life internal combustion engines can play a significant role in platinum supply. . Hence, the adoption of FCEVs would make the transport system and wider economy more resilient against supply shortages.

In addition, FCEVs provide a number of advantages in comparison to BEVs. These include longer range, lower weight (hence less PM from brakes and tyres), and faster charging, all of which are concerns among consumers thinking of purchasing an electric vehicle.

Regarding specific proposals, our positions are as follows:

CO_2 Emission Performance Standards

The proposal for CO_2 emission standards for cars and vans is critical for the decarbonisation of transport and we welcome the ambitious targets proposed by the European Commission. In our view, the proposal will be key to achieving a balanced transition, giving the automotive industry enough time to invest in electrification and ensuring that the right infrastructure is in place before the de-facto phase-out of the internal combustion engine. We believe that the phase-out of the combustion engine should not be an end in itself, but a rational debate is required about the best and most cost-effective pathway towards decarbonisation of transport. To that end, we support the introduction of a full Life-Cycle-Assessment, relating to GHG emissions for cars and vans, also taking into account the emissions from the extraction of minerals.

Alternative Fuel Infrastructure Regulation (AFIR)

For the hydrogen economy to take off, quick deployment of refuelling infrastructure is essential. Therefore, we welcome the AFIR proposal that will enable a common

regulatory framework for the rapid expansion of hydrogen refuelling stations networks. The proposed target to install hydrogen refuelling station at every 150 km along the TEN-T network is an important step to enable hydrogen powered transport, which should be accompanied with an increase in target to two hydrogen fuelling stations per urban node, instead of currently proposed one. Fuelling stations should have the ability to refuel with 700bar and 350bar to ensure that they can be used by both light- and heavy-duty vehicles.

Renewable Energy Directive (RED)

Recognition of the role of hydrogen and the Renewable Fuels of non-biological origin (RFNBOs) is another key element in the development of the hydrogen market. We welcome the Commission's proposal to amend the Renewable Energy Directive by establishing sub-targets for renewable hydrogen and hydrogen-based synthetic fuels in transport (2.6% for renewable fuels of non-biological origin) and in industry (50% renewable share in hydrogen consumption).

Moreover, we support the hydrogen industry position with regards to the upcoming EC delegated act on the appropriate rules for the production of renewable liquid and gaseous transport fuels of non-biological origin from electricity – namely, that these rules need to be framed in a way that will allow for swift scale up of renewable hydrogen production in the EU, and within the EU's own renewable hydrogen production targets.

Sustainability Due Diligence

The decarbonisation of transport and the hydrogen economy will lead to far higher demand in raw materials, and it will be critical that they are sourced sustainably. We therefore strongly support the EU's initiatives on due diligence, the proposal for the horizontal Sustainability Due Diligence Directive and well as the related part of the Battery Regulation. We support ambitious EU rules that prevent fragmentation through national initiatives, call for a risk-based approach and the recognition of voluntary initiatives, that can help implementing the framework.

South African Hydrogen Valley

The uptake of the hydrogen economy requires actual applications and deployment of hydrogen. To that end, we are investing in innovative ventures and enabling technologies, as well as forging wide-ranging collaborations across industry. An important example is the **Hydrogen Valley project** in South Africa. Together with South Africa's Department of Science and Innovation (DSI), the South African National Development Institute (SANEDI), ENGIE and Bambili Energy we are working on a project to integrate hydrogen into the South African economy. Hubs in Johannesburg, Durban/Richards Bay, and Mogalakwena/Limpopo will host pilot projects and contribute to the launch of the hydrogen economy in the so called 'Hydrogen Valley', which will stretch approximately 835 kilometres from the platinum group metals-rich Bushveld geological area in Limpopo to Durban. Anglo American will contribute by installing a 100 MW PV plant for the production of green hydrogen at its Mogalakwena PGMs mine. The green hydrogen will be used to power the mine.

Recently we unveiled a prototype of **the world's largest hydrogen-powered mine haul truck** designed to operate in everyday mining conditions at our Mogalakwena PGMs mine in South Africa. The 2MW hydrogen-battery hybrid truck, generating more power than the diesel predecessor and capable of carrying a 290-tonne payload, is part of our

nuGen™ Zero Emission Haulage Solution (ZEHS). nuGen™ which is part of FutureSmart Mining™, provides a fully integrated green hydrogen system, consisting of production, fuelling and haulage system, with green hydrogen to be produced at the mine site.

Importance of collaboration

We recognise the importance of collaboration and partnerships in achieving our common objectives and targets. To this end, we are keen to work together on the issues listed above and beyond, with all relevant stakeholders, and aim for the highest transparency about our operations and engagement in Europe.

For more information contact:

[redacted]@angloamerican.com

[redacted]@angloamerican.com

[redacted]@angloamerican.com