Sustainability review: Avoided emissions

Overview

Quantifying avoided emissions is a key strategic programme for Weir and supports our ambition to accelerate sustainable mining by helping us develop compelling customer value propositions. Our assessments can inform how we can save money, energy and CO_2e emissions per tonne of ore processed, helping our customers to differentiate solutions and understand the benefits of their investments. The solutions we have assessed are step-change offerings that have significant potential to avoid CO_2e emissions associated with the mining of critical minerals needed for the transition to a low carbon economy.

Reducing energy use and avoiding emissions in comminution processes

In comminution – the process of crushing rock into tiny particles to expose the entrapped mineral so it can be extracted later in the mining process – our High Pressure Grinding Rolls (HPGR) technology can deliver substantial energy and CO_2e benefits versus conventional technologies. Last year, we reported the avoided emissions impact of HPGR-based comminution circuits that became operational in 2023; we have now built on this progress by quantifying the impact from solutions that became operational during 2024.

Reducing energy use and avoiding emissions in tailings and dewatering applications

Weir's GEHO® piston diaphragm pumps are a positive displacement pumping solution which act as an efficient option for transporting slurry (a mixture of solids and liquids), particularly when there is a high solids content. For the first time this year, we have quantified the avoided emissions benefits of GEHO® pumps in tailings or mine-dewatering projects that became operational during 2024, compared to other less-efficient pumping technologies.

2025 target

Our 2025 target is to increase tonnes CO_2e (tCO_2e) avoided using our solutions - see page 120 for more details.

	Total emissions avoided (tCO_2e)	
Circuit type	**2024**	2023[1]
HPGR-based comminution circuits	**430,108**	163,564
GEHO® pumps	**12,786**	–
Total avoided emissions from all qualifying solutions	**442,894**	163,564

Avoided emissions calculation

We have calculated avoided emissions data for HPGR-based comminution circuits that became operational in 2023 and 2024, and GEHO® pumps that became operational in 2024, by comparing the impact of these solutions with the expected performance of conventional technologies. Annualised impacts include the yearly avoided emissions of solutions that became operational in previous reporting years that are still in use during the current reporting year.

For HPGR-based comminution circuits, we calculate circuit-level savings by applying specific outcomes from our previous archetypal study (see global.weir/AE-study) to the key performance attributes of each installation, based on calculated power consumption, design capacity, run time, ore type and location-specific emissions factors. In selected cases, a revised third-party methodology[2], recognised by the Global Mining Guidelines Group (GMG), has been applied to better evaluate the specific energy consumption of the comminution circuits being compared, leading to a modest restatement of the 2023 baseline measure we reported previously.

For GEHO® pumps, we calculate avoided emissions by applying operational efficiency assumptions to the key performance attributes of each installed pump, based on the calculated power consumption that is required to achieve the specified slurry flow rate and operating discharge pressure, as well as run time and location-specific emissions factors.

Methodology and notes

Calculation approach

Avoided emissions are calculated according to the World Business Council for Sustainable Development (WBCSD) Guidance on Avoided Emissions, using a year-on-year timeframe and attributional approach with a medium/company specific specificity level. The use phase only is assessed for both the solution and the reference scenario. Reference scenarios are defined on a case-by-case basis, using the most likely alternative technology at each site, normally tumbling mill-based circuits for comminution and centrifugal pumps for GEHO® applications.

Verification

The 2023 and 2024 assessments have been externally verified to a limited level of assurance by SLR Consulting. A copy of the assurance statement can be found on our website at global.weir/2024/sustainability/SLR_assurance. The assurance work included a review of the avoided emissions data and supporting methodology for completeness, accuracy and appropriateness. Previous verification has included limited assurance of our archetypal study (see global.weir/AE-study) and a high-level review of cradle-to-grave life cycle assessment data showing that operational emissions represent the overwhelming majority (more than 99%) of emissions across the system life cycle.

Acknowledgements and limitations

We comply with the three eligibility gates of the WBCSD guidance:

i) our SBTi targets and scope 1, 2 & 3 CO_2e emissions are externally reported at global.weir/sustainability

ii) the solution aligns to the Intergovernmental Panel on Climate Change (IPCC) mitigation options for energy efficiency; and material efficiency/demand reduction; and to EU Taxonomy activities: installation, maintenance and repair of energy efficiency equipment; and

iii) the solution has a direct and significant decarbonising effect.

Avoided emissions are reported separately from our greenhouse gas inventory and we do not claim them as a contribution towards climate neutrality. We do not report absolute life cycle CO_2e emissions for the solution and reference scenarios because differential assumptions may be used to calculate the avoided emissions results. Potential negative side effects have been assessed and we are confident that the solutions currently in-scope have no trade-offs elsewhere. Our solutions often consume less water than the reference scenario and do not generate more waste or pollution. We plan to complete a comprehensive screening versus the 'Do No Significant Harm' (DNSH) criteria of the EU Taxonomy to support these points. Application of our technologies is likely to be in situations - greenfield mine sites, or brownfield expansions - where production is likely to increase. However, global mineral production is driven by market demand, which is not sensitive to the emissions profile of production. We therefore consider rebound effects to be minimal. We do not report revenues for solutions where we have quantified avoided emissions at present, for reasons of commercial confidentiality. However, we have started to track revenues in line with the EU Taxonomy and propose to report these in future, subject to the complexity around accounting rules and our focus on quantifying impacts when our technologies become operational, which may differ from the year of sale.

1. 2023 results are restated to reflect changes in the methodology and data used for selected installations, resulting in more representative calculations and claims.
2. GMG, 2021: The Morrell method to determine the efficiency of industrial grinding circuits. See: https://gmggroup.org/wp-content/uploads/2024/07/GUIDELINE_The-Morrell-Method-to-Determine-the-Efficiency-of-Industrial-Grinding-Circuits_2021-1.pdf.