Kamoa Copper and CrossBoundary Energy sign agreement for a groundbreaking baseload renewable energy system in the DRC

Key takeaways

- Kamoa Copper S.A. and CrossBoundary Energy have signed a power purchase agreement to provide a 30 MW baseload renewable energy supply to the Kamoa-Kakula Copper mining complex in the DRC
- The renewable energy system will include a 222 MWp solar PV system and a 123 MVA/526 MWh battery energy storage system, offsetting significant fuel generator usage
- This agreement marks a significant step towards sustainable mining practices, demonstrating that baseload renewable energy from solar PV and batteries is a viable and cost-effective alternative to diesel generators for mines

3 April 2025, Kolwezi, The Democratic Republic of Congo— Kamoa Copper S.A. and CrossBoundary Energy have signed a power purchase agreement (PPA) to provide baseload renewable energy to the Kamoa-Kakula Copper mining complex, one of the largest copper mines in the world, situated near Kolwezi in the Democratic Republic of the Congo.

Kamoa Copper S.A. is a joint venture between Ivanhoe Mines, Zijin Mining Group, and the Government of the Democratic Republic of Congo, which owns a 20% stake in the company. The mining complex is the largest of its kind in Africa, with copper production capacity of approximately 600,000 tonnes per annum. The ramp-up of the new on-site direct-to-blister copper smelter is expected to commence in the second quarter of 2025.

This solar project is the first of its kind in Africa and will include a 222 MWp solar PV system and a 123 MVA/526 MWh battery energy storage system (BESS). The plant will provide a 30MW dispatchable renewable baseload energy supply to the mine, offsetting fuel generators and reducing carbon emissions by around 78,750 tonnes per year. CrossBoundary Energy will own and operate the plant, and Kamoa Copper will pay for the energy it consumes. The plant is expected to produce ~300,000 MWh of clean energy per year.

Whilst many mines have incorporated solar PV and BESS systems into their operations, the supply of baseload energy—a guaranteed power output at all times—is rare for solar PV and BESS, as the sector has typically been cautious of intermittency. However, due to the increasing efficiency of solar PV and the declining cost of BESS components, a renewable baseload system is now viable and cheaper than the diesel generators currently providing power to the mine.

Annebel Oosthuizen, Managing Director of Kamoa Copper, said, “This is a pivotal moment for Kamoa Copper and the Democratic Republic of the Congo. As a company, Kamoa Copper has been setting innovative benchmarks in various domains, and with this partnership on baseload renewable energy, we will continue to do so.

We are pleased to have CrossBoundary Energy as our first partner in this endeavor. Their commitment to honesty, integrity, and delivery is exemplary. We anticipate hard work and successful outcomes from this project. From Kamoa Copper's side, we are committed to providing unwavering support to ensure our suppliers' success, as we demand excellence in all our collaborations.”

Auguy Bakome, Project Manager at Kamoa Copper, said, “The solar project is a key milestone in delivering clean, reliable energy to Kamoa Copper. With advanced solar and battery systems, we’re boosting energy resilience, cutting emissions, and advancing sustainable mining. We commend CrossBoundary Energy for their professionalism and technical expertise.”

Matthew Tilleard, Managing Partner at CrossBoundary Energy, said, “Africa’s most significant hindrance to growth and investment is access to reliable and affordable power. Projects like these prove that distributed clean energy can now provide cheaper baseload power, even for heavy industry. We congratulate the Kamoa Copper S.A. team for this project, which will advance the whole sector.”

Franck Alloghe, Business Development Director for CrossBoundary Energy, said, “This agreement represents a change in energy supply for mining operations, indicating that diesel or HFO generators are no longer the only viable option for guaranteed baseload power generation. We look forward to executing this project with the Kamoa Copper team. Baseload from the sun is here.”

Construction of the renewable energy facility is due to start in August 2025.

The Kamoa Copper mining complex is one of the largest and fastest-growing copper complexes globally, with significant energy needs. The company’s commitment to incorporating renewable energy components underscores its ambition to lead the sustainable mining industry and energy transition.

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About Kamoa Copper

The Kamoa Copper is a joint venture between Ivanhoe Mines (39.6%), Zijin Mining Group (39.6%), Crystal River Global Limited (0.8%) and the DRC government (20%).

The Kamoa-Kakula Copper Complex is one of the highest-grade and fastest growing major copper mining operations globally. Copper concentrates were first produced in May 2021 and, through on-going Phase 2 and Phase 3 expansions, Kamoa Copper is positioned to become one of the world's largest copper producing operations, with 2025 production guidance set at between 520,000 to 580,000 tonnes of copper in concentrate.

The Kamoa Copper Complex is powered by clean, renewable hydro-generated electricity and is among one of the world's lowest greenhouse gas emitters per tons of copper metal produced on a Scope 1 and 2 basis.

About CrossBoundary Energy

CrossBoundary Energy develops, owns, and operates distributed renewable energy solutions for businesses, offering cheaper and cleaner energy through power purchase and lease agreements. With a US$680M portfolio of awarded, signed, in-construction, and operating energy assets, the company boasts over 500 MWp of solar PV, wind generation, and thermal projects and approximately 600 MWh of battery energy storage solutions. Its clients include industry leaders like Rio Tinto, Unilever, Diageo, Heineken, and the Devki Group. The diverse portfolio features large-scale renewable-led hybrid power plants for mines, rooftop and ground-mount solar PV plants for industrial clients, and distributed solar PV and battery power solutions for telecommunications sites. As a member of the CrossBoundary Group, founded in 2011, CrossBoundary Energy is dedicated to unlocking the power of capital for sustainable growth and strong returns in underserved markets. Learn more at www.crossboundaryenergy.com.