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Press Release

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Page 1 of 2

thyssenkrupp Uhde Africa to study Underground Pumped Energy Storage at Sibanye-Stillwater's Driefontein gold operation

Leading international mining company, Sibanye-Stillwater, has appointed thyssenkrupp Uhde Africa to undertake an Underground Pumped Energy Storage Pre-Feasibility Study at Driefontein Gold Mine. thyssenkrupp Uhde Africa is undertaking the study in collaboration with Wismut GmbH, a specialist mine closure and remediation company, that is federally owned by the German government. The project involves repurposing unused shafts and associated mine tunnels for Renewable Underground Pumped Hydroelectric Energy Storage (RUPHES). The objective of the Pre-Feasibility Study is to test and develop the technical and commercial concept to enable Sibanye-Stillwater to assess the viability and benefits of the project as an option for mine closure and facilitation of the post-mining economic development of communities through provision of sustainable energy and water.

South Africa has a national electricity generation supply deficit, world-class solar and wind resources and a commitment to achieve net zero by 2050. A challenge to material renewable energy penetration and our national response to climate change is cost-effective energy storage. Sibanye-Stillwater believes that a RUPHES system may support its commitment to carbon neutrality by 2040.

Underground pumped energy storage utilises development mining tunnels, previously used to access the gold reefs, as upper and lower reservoirs which will enable energy storage and generation. When excess electricity from renewable or other sources, is available, water is pumped to the upper reservoir. When the electricity is required the water discharges from the upper reservoir to the lower reservoir under gravitational force, generating electricity through a generator coupled to a turbine in the shaft system.

Traditional hydroelectric energy storage projects require several years to construct water storage dams to be utilised as reservoirs. The development of reservoir dams for traditional storage are typically half the cost of the total project. Repurposing mining development tunnels to store water therefore could enable cost-effective energy storage and also reduces construction schedules.

CAPTION: Schematic structure of a Renewable Underground Pumped Hydroelectric Energy Storage (RUPHES) system utilising abandoned deep level gold mines (Figure courtesy of thyssenkrupp Uhde Africa)

About us:

thyssenkrupp Uhde combines unique technological expertise and decades of global experience in the engineering, procurement, construction and service of chemical plants. We develop innovative processes and products for a more sustainable future and thus contribute to the long-term success of our customers in almost all areas of the chemical industry. Our portfolio includes leading technologies for the production of basic chemicals, fertilizers and polymers as well as complete value-chains for green hydrogen and sustainable chemicals.

Wismut GmbH was established in 1991 to remediate uranium-mining sites in southeast Germany left behind by the SDAG Wismut as world's largest single uranium producer during the cold war. Fully owned by the Federal Government of Germany Wismut GmbH to date has spent close to €7bn on one of the world's largest and most complex remediation programmes. As a leader in the field with projects across the globe, Wismut increasingly focuses on developing innovative and sustainable solutions to mine closure and post-closure development and remediation.

For more information visit: www.wismut.de.

For more information about Sibanye-Stillwater and its operations, please visit:

www.sibanyestillwater.com

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