



MINING FOR A FUTURE

Renewables and ESG

CASE STUDY

ENERGYANDMINES
AFRICA VIRTUAL SUMMIT
MAY 4-6, 2021
RENEWABLES FOR MINES

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OVERVIEW OF PRESENTATION

Strategic drivers for investing in solar for Evander Mines

Aligning ESG, community engagement and environmental goals with energy strategy

Next steps for project implementation

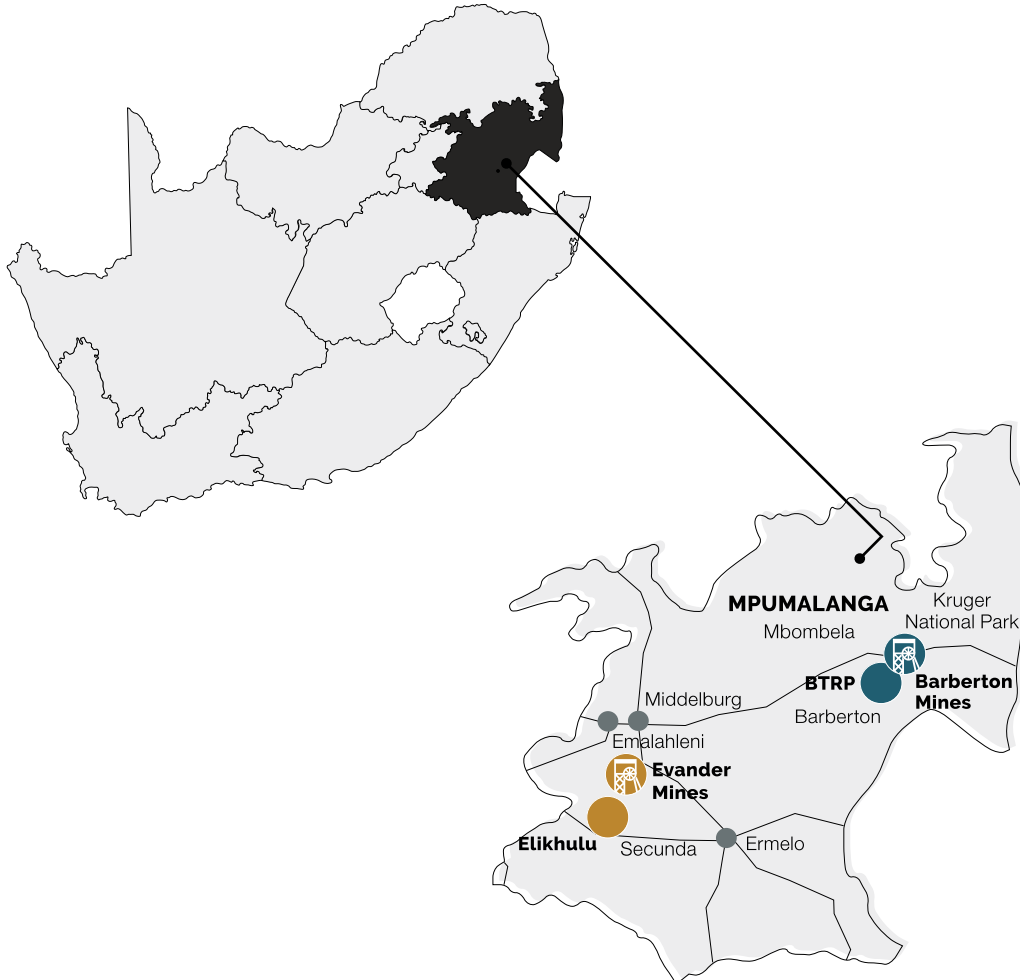
Assessing expansion options

Appendix

**STRATEGIC DRIVERS FOR
INVESTING IN SOLAR FOR
EVANDER MINES**

STRATEGIC DRIVERS FOR INVESTING IN SOLAR FOR EVANDER MINES

LOCATION OF EVANDER MINES



KEY CONSIDERATIONS

- Solar plant will provide *ca.* 30% of the Elikhulu Tailings Retreatment Plant power during daylight hours
- Reliability of power supply in the future – ensures production disruptions are minimized, reduced dependence on Eskom
- Reduced carbon footprint – expected CO₂ savings to also improve Group ESG ratings and benefit climate change concerns
- Materially reduced electricity costs over the long term will reduce cost of gold production (electricity makes up 15% of production costs currently)
- Will mitigate against expected significant Eskom tariff increases in the short to medium term
- Quicker payback period (less than 10 years)
- Future expansion potential as Egoli Project comes online

REASONS FOR 9.975 MW_{AC} INITIAL PHASE

- Ministerial consent waived for solar plants not exceeding 10MW
- EIA waiver obtained as plant built on previously disturbed land near a residential area and plant capacity not exceeding 10MW
- Current power requirements were in line with 9.975MW_{AC} capacity

**ALIGNING ESG, COMMUNITY
ENGAGEMENT AND
ENVIRONMENTAL GOALS WITH
ENERGY STRATEGY**

ALIGNING ESG, COMMUNITY ENGAGEMENT AND ENVIRONMENTAL GOALS WITH ENERGY STRATEGY



Energy strategy

- PAR operations are long-life mines - Reserves > 10 yrs +
- Reduced carbon emissions
- Sustainability of supply
- Reduced costs to improve margins and profitability – maximize shareholder returns and improved investment case
- Improved ESG ratings



Environmental goals

- Increased focus on rehabilitation, water recycling and alternate land use
- Fully compliant with all annual audit inspections
- Multi-faceted and includes reduced air, water usage, dust and carbon emissions goal reductions
- Fully funded rehabilitation liabilities



Stakeholder engagement

- Multi-faceted engagements with all stakeholders, including with our communities
- Create awareness through engagement on benefits of renewable energy and long term environmental benefits



ESG

- Annual reporting in terms of King IV and GRI Codes
- PAR has commissioned dedicated specialist ESG report for FY2021 - gaps being benchmarked with international best practice to improve implementation
- 'Beyond compliance' community projects in progress to improve livelihoods in host communities
- Fully compliant with mining right obligations in terms of audits and SLP submissions

NEXT STEPS FOR PROJECT IMPLEMENTATION

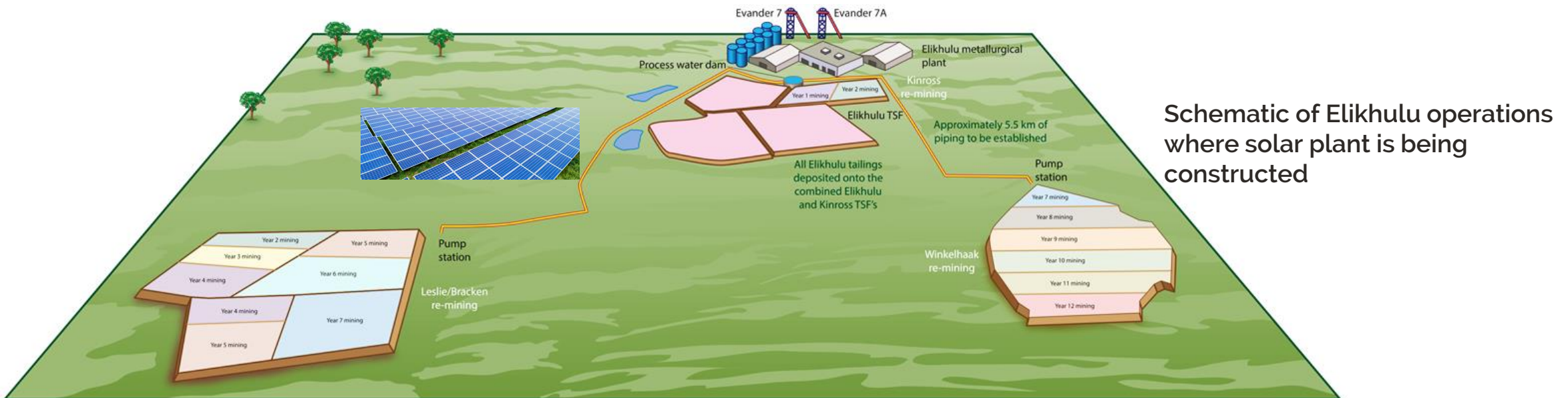
NEXT STEPS FOR PROJECT IMPLEMENTATION

CURRENT STATUS

- Project fully developed in terms of permitting
- NERSA Generation license to be issued in August 2021
- juwi Renewable Energy has been selected as EPC provider
- Construction has commenced
- Eskom BQ process commenced in December 2020 and is ongoing
- The plant will be operated by PAR following a short-term O&M agreement with juwi during which skills to PAR employees transfer will take place

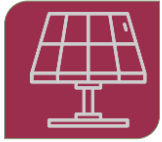
TIMELINE TO COMMISSIONING

- Construction to be completed in early October 2021
- PAR is working closely with Eskom to explore connection strategies
- Eskom timeline is dependent on the BQ process and both PAR and Eskom are committed to accelerate connection to the Eskom grid



Schematic of Elikhulu operations where solar plant is being constructed

TECHNICAL SPECIFICATIONS – 11.8MWP / 9.975 MWAC



MAIN COMPONENTS

Modules: 26 640 x 445 Wp Bifacial
Racking: Dual Row Trackers
Inverters: 50 x 250 kW String Inverters &
4 x 3 MW MV Stations



OUTPUTS

Annual yield 26 GWh/Year (31% of consumption)
Annual saving ZAR 36 million ZAR

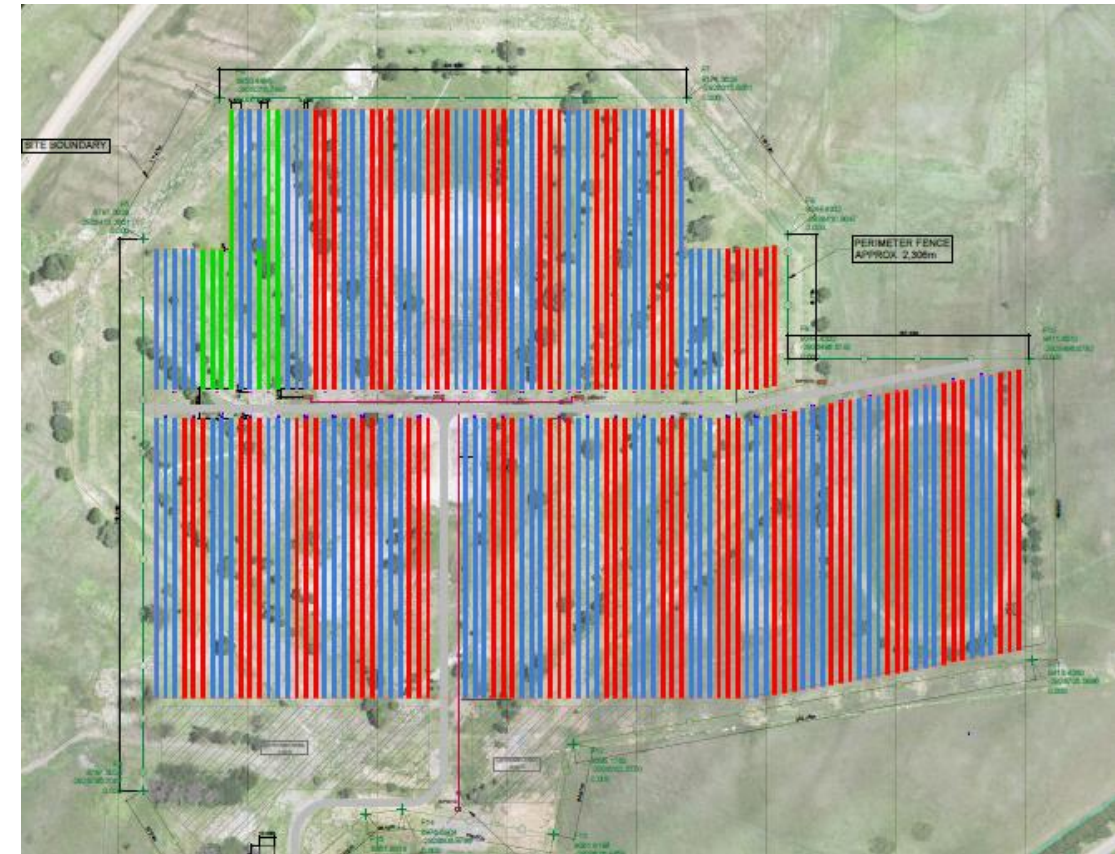


GRID CONNECTION

On-site switching station: 6.6KV dual bay
Transmission: ~400 m 6.6 kV over head line
Connection Point: existing 6.6 kV switchboard extension

juwi EPC CONTRACTOR: JUWI RENEWABLE ENERGIES

juwi Group established in 1996, leaders in renewable energy
Project development, EPC and O&M
More than 5 GW Solar PV installed worldwide
South African office opened in 2011
More than 400 MW Solar PV installed in South Africa



ASSESSING EXPANSION OPTIONS

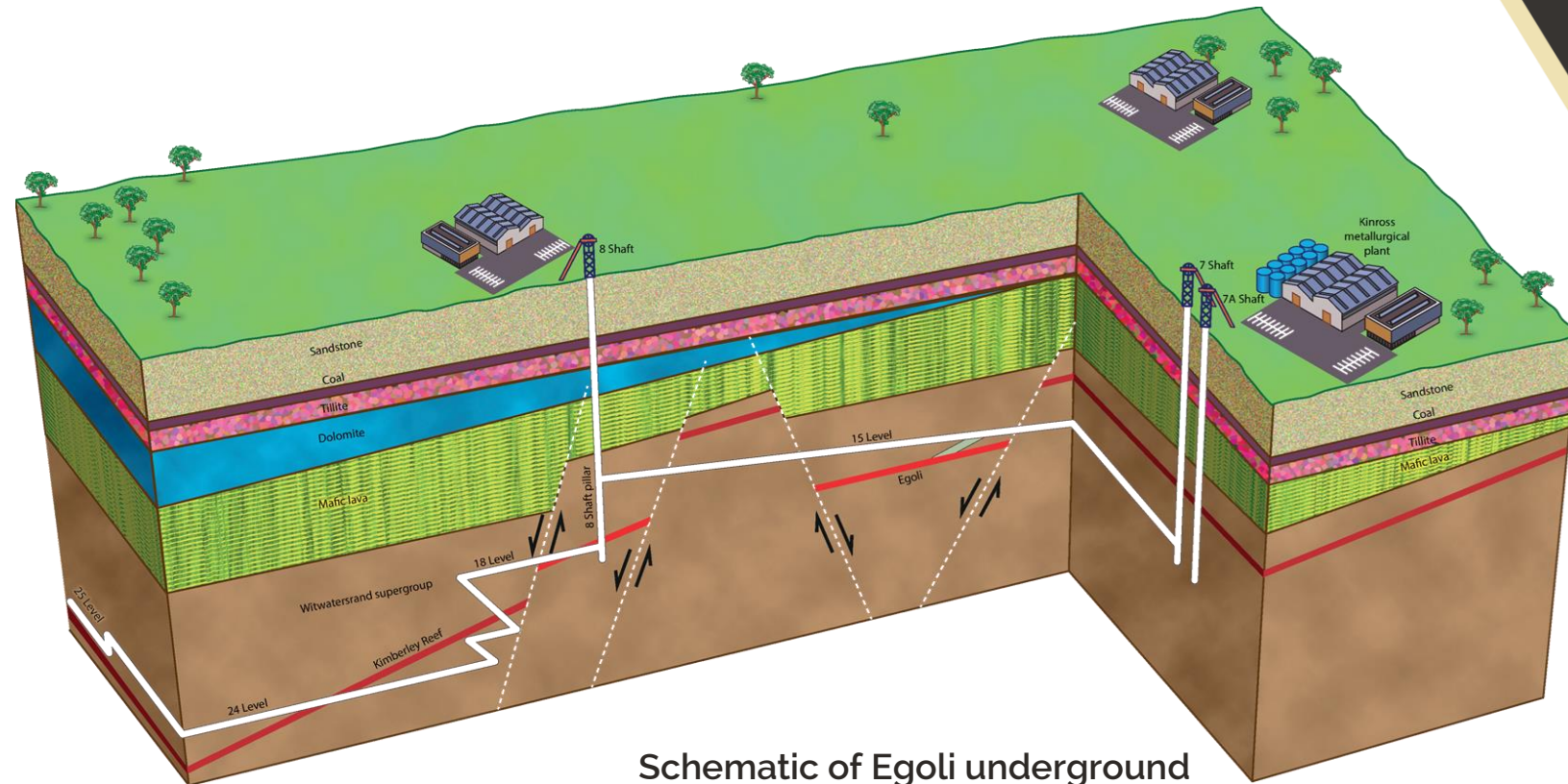
ASSESSING EXPANSION OPTIONS

EGOLI UNDERGROUND MINING PROJECT

- Available freehold property owned by Evander Mines
- Located adjacent to Elikhulu operations
- Production to ramp-up in 2 years
- Ensures reliability of supply and production cost savings
- Further reduced carbon emissions over the medium to long term
- Possible to expand the Solar plant by an estimated 15MW to produce power to Egoli

BARBERTON SOLAR PROJECT

- Feasibility study for a similar sized PV plant at PAR Barberton Mines operations is underway
- Pre-feasibility results are positive and indicative of attractive project returns



Schematic of Egoli underground operations – to be supplied by expanded solar facility

PAN AFRICAN 
RESOURCES

THANK YOU

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ONGOING REHABILITATION, BIODIVERSITY AND SUSTAINABLE DEVELOPMENT INITIATIVES

ENVIRONMENT



Renewable energy: Elikhulu 9,975MW solar PV plant

- Reduced carbon footprint – will save 26,000t of CO2 emissions in the 1st Year
- Ensures stability of supply & cost reduction
- Options to expand plant to 25MW
- Feasibility study complete for solar PV plant at Barberton Mines

ENVIRONMENT



Biodiversity management

- Collaboration projects to promote sustainability of protected areas in host communities
- Will provide a clear framework for the continued coexistence of conservation and mining activities

SOCIAL



Socio-economic development

- Construction of second healthcare infrastructure project nearing completion at Barberton Mines Community – to be handed over to Department of Health in March 2021
- New school infrastructure plans approved at Kaapvallei School, Barberton – construction to commence in Q1 2021
- Community lighting infrastructure projects commenced at Evander

Planning for numerous host community initiatives in progress as part of the current 5-year approved social and labour plans implementation process

Invested US\$1.0 million in host community projects and employee development programmes

SOCIAL



Barberton Blueberries agri-project

- Employment for local communities – up to 375 seasonal jobs, added downstream job opportunities
- Optimise use of land and water resources – 15ha initial phase on land owned by Barberton Mines
- On track for commissioning during May 2021
- 'Beyond compliance' long-term initiative to sustain local communities beyond mining – initial budget of US\$2.7 million

ENVIRONMENT



Responsible and sustainable water use programmes

- Focus on efficient use of water through reuse and recycling
- Feasibility study completed at Evander Mines on a water retreatment plant to treat 3 megalitres of water/day using reverse osmosis technology

GOVERNANCE

Independent audits completed and ongoing

- Carbon tax emissions
- Tailings storage facilities
- Mineral tenure compliance
- Social and Labour Plan implementation
- Water use licenses
- Environmental management system compliance

Closure liabilities fully funded
Ongoing rehabilitation programmes

SOCIAL

Skills development

- Ongoing investment in skills development and training of employees, learnerships and community bursaries

