

Clean Energy Solutions for Mines: Reduce cost and carbon footprint



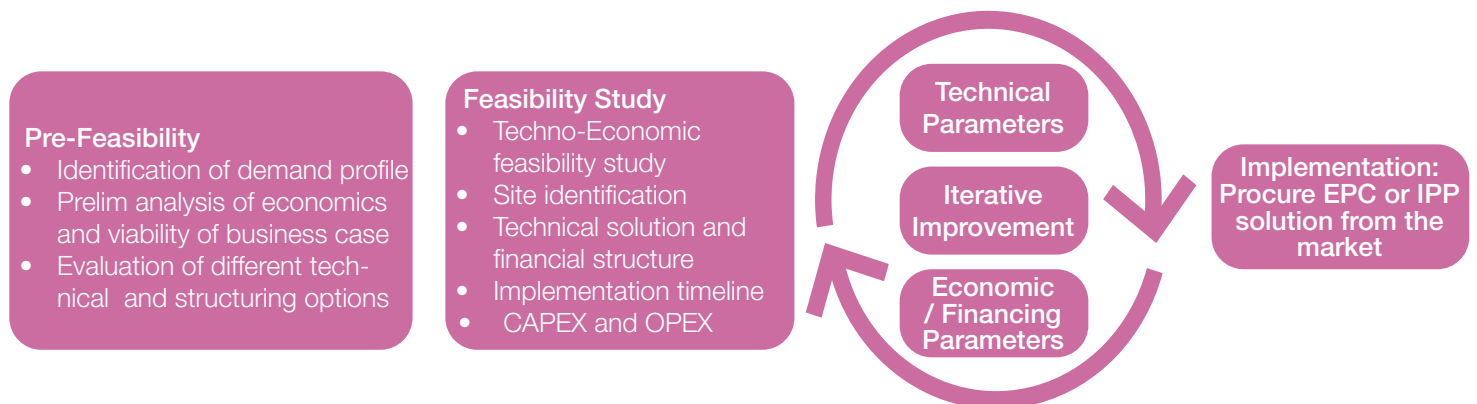
Your Challenges

- Security of energy supply: no interruption of mining activities
- High energy cost, especially in remote mining sites (off-grid), price volatility, security of supply
- Green the industry: reduce carbon footprint
- Trust the reliability of renewable power

Our Solutions

- Independent expert, develop individual solution for each case
- Advise on EPC vs. IPP approach
- 20 % to 100 % renewable share
- Solar, wind, storage, fossil hybrid
- Competitive selection process leads to market based energy tariffs, even when grid connected
- Support from concept to operation

Suntrace runs an integrated techno-financial approach to identify the most competitive solution



1. Taking Stock

- Analyse mine power needs (load profile, generation profile, expectations)
- Identification of the mine's potential
- Propose scenarios for evaluation
- Status and next steps

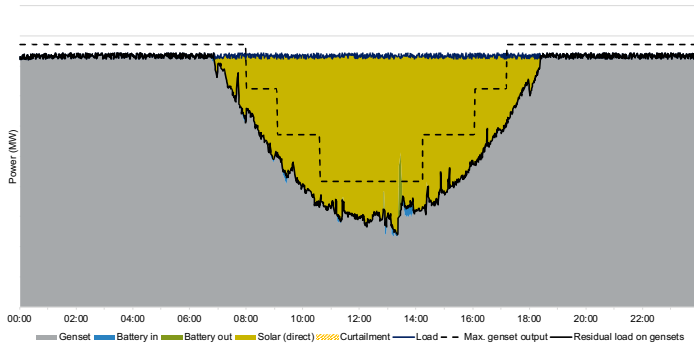
2. Optimisation / Detailed FS

- Tailor-made renewable concept including existing power supply / generation
- Optimize future power generation for the mine through Techno-economic optimisation
- Determine cost benefits
- Risk and sensitivity analysis
- Tender specifications for procurement of EPC / IPP

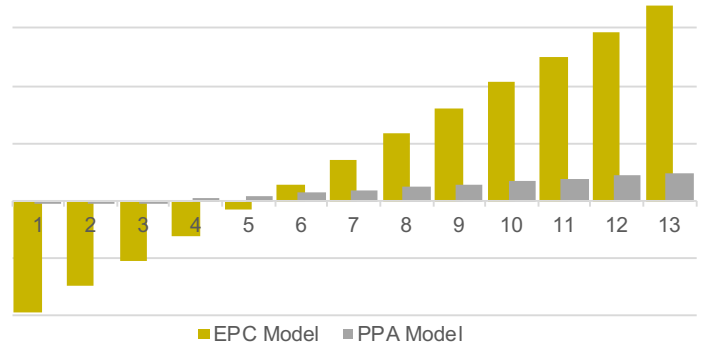
3. Implementation

- Independent expert / Owner's engineer during development and implementation
- Support competitive selection of EPC / Components or IPP / PPA
- Support project development, transaction, construction and operation

On or off-balance sheet? Pro's and Con's



Payback trough Cost Savings



Business Model	EPC Turn-Key	IPP/ PPA (Power Purchase Agreement)
Characteristics	<ul style="list-style-type: none"> EPC turn-key solar plant. Investment assumed by mine. 	<ul style="list-style-type: none"> IPP finances, installs and operates solar plant under long term PPA contract.
Ownership of Plant	<ul style="list-style-type: none"> EPC until COD, then mine, on balance 	<ul style="list-style-type: none"> IPP, Off Balance of mine
Pro's	<ul style="list-style-type: none"> EPC responsible (2yr warranty) EPC execution experience Highest savings Lower legal complexity Control over generation 	<ul style="list-style-type: none"> Investment by IPP investor (off balance sheet of the mine)
Con's	<ul style="list-style-type: none"> Alignment of EPC and mine objectives Most EPC have no experience in mining Pay for risk margin of EPC 	<ul style="list-style-type: none"> Alignment of IPP and mine objectives (solar vs. engines?) Higher legal complexity: PPA and contractual paperwork for investment and finance Change in generation requires agreement with IPP Lower Savings

Why Suntrace

- Technical and financial know-how under one roof, combining meteorological, technical and financial aspects, cutting edge
- Proven C&I references: 6.5 MW solar for Ohorongo Cement, Namibia (operating since 2018), 36 MW solar / 15 MWh Battery hybrid for B2Gold Fekola, Mali (under construction)
- Track record from more than 9 GW of solar power plant credentials in more than 40 countries
- from concept to full realisation: solar, wind and storage including hybrids with conventional power systems
- Part of Dornier Group with approx. 100 Mio EUR turnover and more than 2.000 staff



Lukas Haack
Senior Project Manager

