



ANGLO AMERICAN PLATINUM ENERGY TRANSITION

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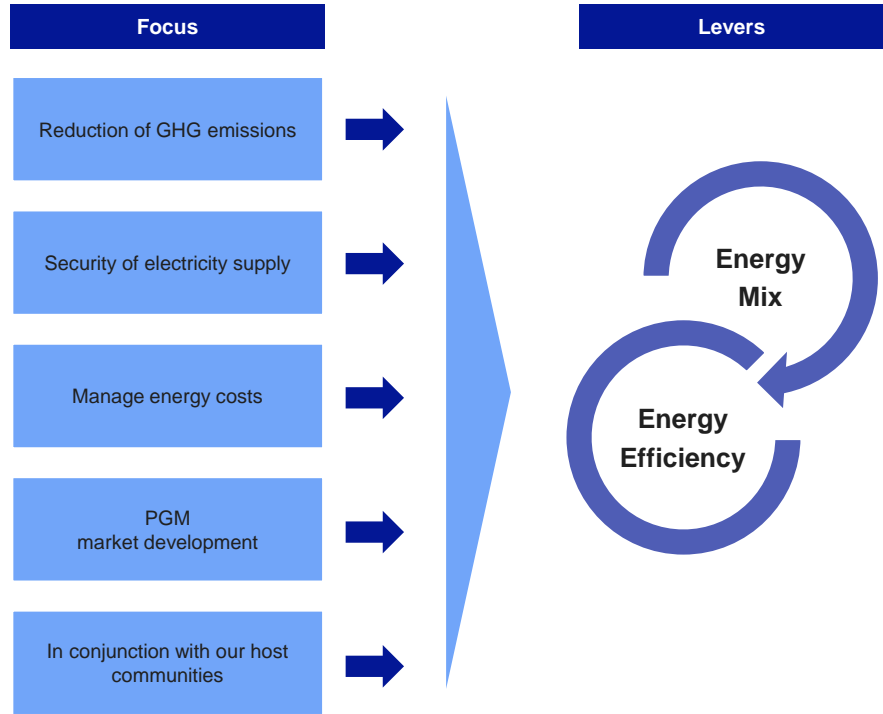
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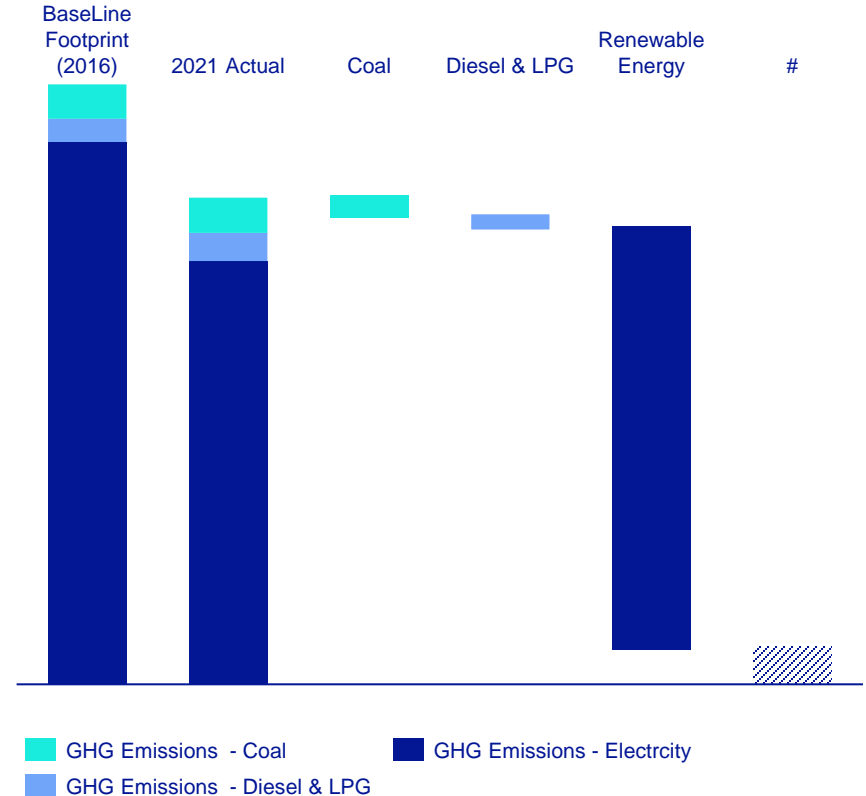
- Drivers for Change
- Decarbonisation Initiatives
- Key Criteria for Developing a Solar PV Plant
- Procurement Framework
- Conclusion

DRIVERS FOR CHANGE IN THE ENERGY OUTLOOK



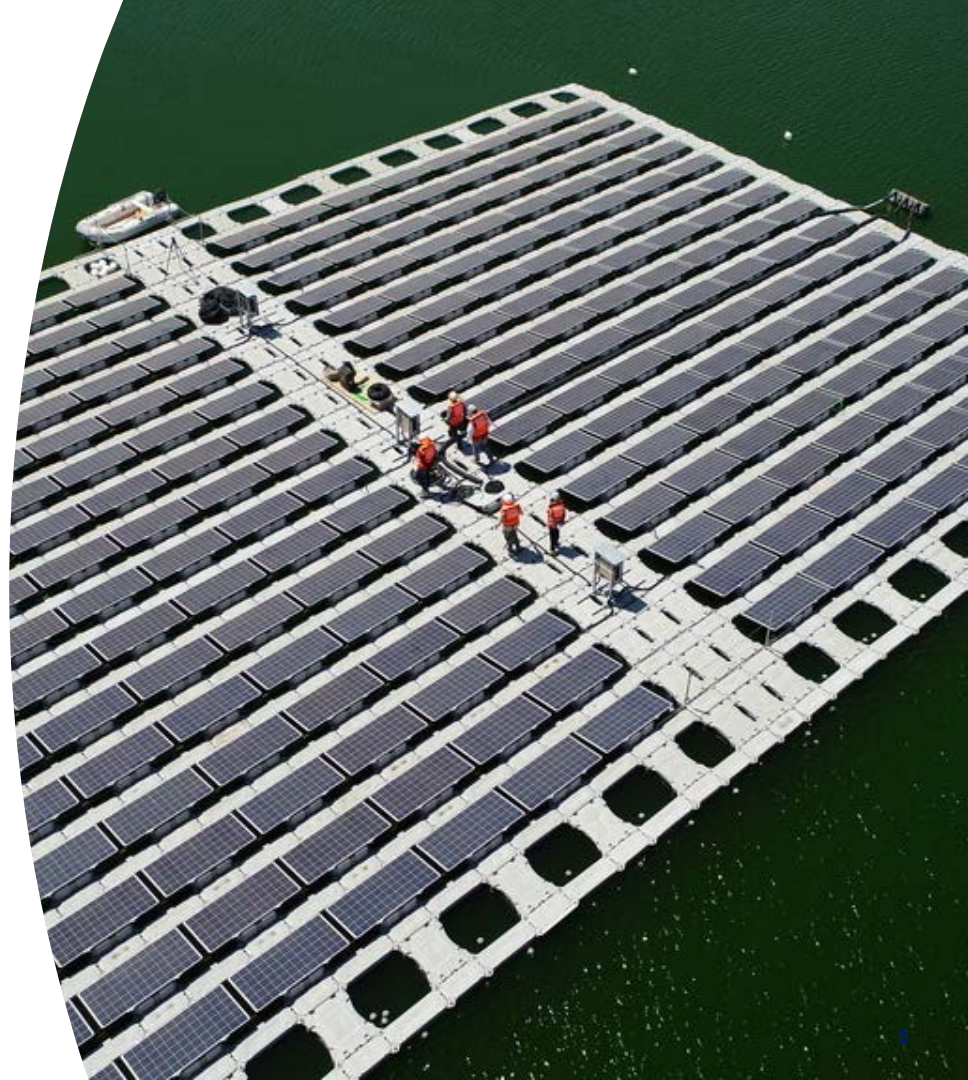
CONCEPTUAL SCOPE 1 & 2 CARBON REDUCTION

- Business As Usual projects looking at systems optimisation, e.g. mills, pumps, compressed air and chillers
- Renewable Energy - Solar PV projects
- Renewable Energy - programme for 24/7 operations



ALTERNATE ENERGY TECHNOLOGIES

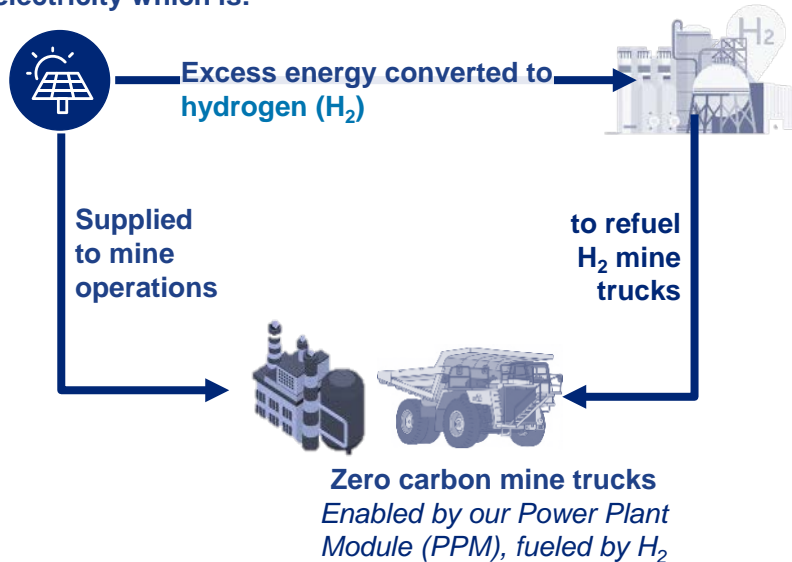
- **Mini hydropower**
 - Various opportunities within our internal gravity lines
- **Waste to hydrogen utilising advanced plasma gasification**
 - Can only compete as a replacement fuel against diesel at this stage
 - Requires less water and energy than electrolysis
 - Waste utilisation – circular economy
 - Community development through waste preparation as feed
- **Waste to energy using alternate 'green' gasification technologies**
 - Small scale intent for internal waste (zero waste to landfill) utilisation – circular economy
- **Floating solar (FPV)**
 - Water savings as an additional benefit
- **Biomass to energy**
 - Biomass crops (various in assessment) to biogas / peaking power and synthetic diesel
 - Significant social performance (job creation) benefits
 - Sustainable livelihoods for end of mine



AN INTEGRATED MINE DECARBONISATION SOLUTION

System Architecture

We generate renewable electricity which is:



KEY CRITERIA FOR DEVELOPING A SOLAR PV PLANT

- **Sustainability**
 - Climate Change – greenhouse gas emissions reduction
 - Changes the energy mix for the business
- **Financial & Commercial**
 - Cost competitiveness
 - IPP vs EPC
 - Contracting Strategy
 - Term of Agreement
- **Legal and Regulatory**
 - IFRS (balance sheet assessment)
 - “Embedded” generation vs Wheeling
 - Environmental authorisation
 - Land access and land use agreements
- **Community Benefit and Partnership**
 - Inclusion in solar PV plant business structure
 - Land usage and rental income
 - Job opportunities
 - Local enterprise development
- **Technical**
 - Integration with existing electricity supply and site electrical reticulation, including equipment protection philosophies
 - Storage options (BESS, hydrogen, etc)

PROCUREMENT FRAMEWORK

- **Engagement of a Transaction Advisory Team**
 - to provide technical, financial, commercial, socio-economic and legal due diligence in the structuring of an off-take Power Purchase Agreement (PPA) to be concluded with a selected Independent Power Producer (IPP)
- **Technical**
 - Sizing and layout of the PV plant
 - Electrical design layout and sizing
 - Energy yield assessments
 - Financial model assumptions
- **Financial**
 - assessing the financial parameters, assumptions and business case input / output
- **Commercial**
 - assessing the commercial contracts, (turnkey, EPC, O&M, grid connection, power purchase regulations)
- **Legal**
 - assessing the permits and contracts (EPC and O&M)
- **Expression of Interest vs Request for Information**
 - Rather than generic, it would be advisable to be detailed and specific from an early stage
 - Outcome would be the short-listed bidders for the next phase
- **Request for Proposals**
 - To select the developer
 - Agree the PPA terms and conclude the Development Agreement

PROCUREMENT FRAMEWORK

- **Business Case - Update**

- The Business Case must clearly demonstrate affordability for the full project life-cycle and propose the optimal value-for-money solution for the project

- **Compile Transaction Structure Agreements**

- Drafting, negotiations and agreement of the Transaction Structure with the IPP

- **Financial Closure**

- Authorisations, licenses, permits and agreements concluded and approved
- Sign off

- **Construction, Commissioning, Operation**

- Procurement of equipment
- Procurement of construction services
- Construction and commissioning
- Commercial Operation (COD)

CONCLUSION

- The foundations of a successful project relies on a close working relationship between the IPP / Developer and the off-taker to ensure that the project objectives, viz. technical, financial, commercial and socio-economic are developed in synergy with each other
- The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) of the Department of Mineral Resources and Energy (DMRE) has channelled substantial private sector expertise and investment into grid-connected renewable energy in South Africa
- Large-scale solar PV plants have been successfully constructed as part of this programme
- Embedded generation (captive power) options for large industrial customers will further support the roll out of renewable energy options, with key business benefits, including environmental and community benefits
- However, the project objectives and execution methodology requires a sound framework for implementation, an all-encompassing stakeholder engagement plan and the agility to adapt technology to suit the business environment



Thank you