

# **Unlocking Botswana in Coal Mining**

**10 December 2018** 

**Investor Briefing on Botswana Railways Infrastructure Projects** 

# DEVELOPING A COAL AND ENERGY COMPANY IN BOTSWANA



## Highlights

- Coal and Energy development company in Botswana
- Strong experienced development team
- Phase 1: Mmamabula Coal Mine Await Mining License
  - > Investment of ± USD 41 million
  - > ± 420 Permanent employees in Operational phase
  - Target commencement of construction Q1 2019
  - Planned coal sales Q4 2019
  - Sized coal product for SA inland market 100,000 tpm
  - > Capitalizing on distressed South African coal market
- Botswana Stable top investment grade jurisdiction
- Phase 2: Mmamabula Coal to Liquids project Feasibility commence in Q1 2019
  - Estimated investment of ± USD 300 million and creating approximately 1 500 jobs





Phase one:

- Construction Q1 2019
- Production Q4 2019

Phase two: Mmamabula gas to liquids Develop Coal to Liquid (CTL) Business

### Phase one: Mmamabula Coal Mine

- 50,000 tpm ramping up to 100,000tpm sized coal export operation for SA Inland Market
- Secondary Mine producing 300 000 tpm of thermal coal for export – subject to Waterberg Rail Link

USD 10 million Funding secured for Feasibility Study – Commencement Q1 2019



- Botswana, Central District and within the Mmamabula coalfield
- 145 km north of Gaborone & 125km south of Palapye
- Nearest village: Mookane
- Site accessible via A1 tar road and link currently under construction between Dibete and Martinsdrift
- Ideally located regarding access to future Mmamabula to Lephalale rail link for exports





## Geology, Exploration, Mining and Processing

- Project located in the Mmamabula Coalfield that hosts in excess of 2 billion tons of high grade coal
- Coal seams: D1, M2, seam thickness of 3-4m
- High grade thermal coal: CV 22 -24 MJ/kg (raw)
- Extensive exploration conducted
- Total holes drilled: 218
- Competent Person's Report compiled by Nico Denner, GEMECS
- Project has in excess of 90MT of Mineable In Situ Tons (MITS)
- Conventional Opencast Mining with Truck and Shovel Operations. Underground Mining – Board and Pillar
- Phase 1 On average 140 000tpm of ROM
- 100 000tpm of processed and sized product for regional market
- Mining License application submitted in April 2018 Award expected in 2018 / early 2019





## Mine Infrastructure



Infrastructure to be developed: Mine access road, mine water & power supply, mine buildings & security control,7 MAATLA ENERGY | December 2018pollution control dams, discard dam, railway siding: 1.5 km



## Mmamabula Coal Mine Timeline

-	Task		Duration	Start	Finish		3rd Ous			1st Quarte		3rd Quarte	
0	Mac		200 1	10/05/04	F : 10/11/20	May	Jul	Sep	Nov	Jan	Mar Ma	y Aul	Sep N
2	-	MMAMABULA PROJECT PLAN	390 days	Mon 18/06/04	Fri 19/11/29	-							
3	*	1) PROJECT APPROVAL & LEGAL EXECUTION	85 days	Mon 18/06/04	Fri 18/09/28			-					
4	*	2) SITE WORKSHOP, TEMPORARY OFFICES & HOUSES	100 days	Mon 18/07/09			4.						
5	×	3) INFRASTRUCTURE & SITE ACCESS	125 days	Mon 18/09/03	the second state and state to be			-	1.2				
6	*	4) SURVEYING	39 days	Mon 18/10/15	Carlos and the second second second				- 1				
7	*	5)RAILWAY SIDING & ROADS	30 days	Mon 19/02/04							1		
8	*	6) MINING DESIGN & CONTRACTOR APPROVAL	167 days	Thu 18/11/01	- Provide the second state of the second state				-	-		-	
9	A	7) INFRASTRUCTURE CONSTRUCTION	89 days	Mon 18/10/15	Thu 19/02/14					1			
10	*	8) INFRASTRUCTURE COMMISIONING	73 days	Fri 18/11/30	Tue 19/03/12								
11	*	9) MECHANICAL DESIGN	169 days	Mon 18/07/02	Thu 19/02/21		1						
2	×*	10) CIVIL DESIGN	106 days	Mon 18/10/01	Mon 19/02/25			-	_				
13	*	11) ELECTRICAL, C & I DESIGN	88 days	Mon 18/10/15	Wed 19/02/13			E	_	1			
14	A	12) PROCUREMENT	28 days	Wed 18/10/10	Fri 18/11/16			1	-				
15	*	13) CIVIL CONSTRUCTION	195 days	Mon 18/10/22	Fri 19/07/19			1		_			
16	*	14) GENERAL CONSTRUCTION SUPPORTING EQUIPMENT	75 days	Mon 19/01/07	Fri 19/04/19					-	- 4		
17	*	15) FABRICATION	138 days	Thu 18/11/01	Mon 19/05/13								
18	*	16) TRANSPORT & DELIVERY	142 days	Thu 18/11/01	Fri 19/05/17				-	-	1		
19	*	17) DMS PLANT ERECTION	64 days	Mon 19/01/28	Thu 19/04/25						-		
20	*	18) THICKENER & DAMS	55 days	Mon 19/03/18	Fri 19/05/31						1. J.		
21	A	19) MCC & CONTROL ROOM INSTALLATION	43 days	Mon 19/04/01	Wed 19/05/29								
22	*	20) ROM BIN, CRUSHING & SCULPING SECTION	7 days	Mon 19/06/03	Tue 19/06/11						1	1	
23	*	21) CONVEYORS & DUST SUPPRESSION INSTALLATION	82 days	Mon 19/04/15	Tue 19/08/06						E	1	
24	*	22) PUMPS & HDPE PIPING INSTALLATION	46 days	Wed 19/05/01	Wed 19/07/03						1		
25	*	23) ELECTRICAL, C & I MANUFACTURING & INSTALLATION	179 days	Thu 18/11/01	Tue 19/07/09							1	
26	st.	24) COMMISSIONING & OPS STAFF TRAINING	167 days	Tue 19/03/05	Wed 19/10/23					1			1
27	*	25) HAND OVER	30 days	Mon 19/10/21	Fri 19/11/29								1









## Mmamabula Coal to Liquids – Unlocking the Value Chain

- Distributed / Modular design utilising proven and scalable technology
- Small Scale Production
- 3000 bbl/d (160 180 million litres per annum)
- Phase 2 CTL Feasibility to commence in Q1 2019 Estimated cost of USD10 million
- Expression of Interest for off-take received from Botswana Oil
- Implementation capex estimated at ± USD 290 million
- Timeline
  - Feasibility Study & EIA 14
    - 14 -16 months
  - Implementation
- 18 24 months







#### There is an increasing demand globally for coal with a decline in production

- Global Demand increasing from ± 900 MT per annum to over a 1 000 MT per annum in 2025 and even further to 1 240 MT per annum by 2030.
- Demand is mainly due to South East Asia and other developing countries relying on coal as a source of power generation.
- International Energy Agency (IEA) forecasts that coal will remain the largest single source of electricity generation through to 2040.
- Coal makes up around 40% of global electricity generation and astonishing amounts of coal fired power stations are being planned or constructed worldwide.
- Current increased demand from India is ± 60 MT per annum and Pakistan ± 20 MT per annum.
- Noble Energy Research predicts a "shortfall" of ± 380 MT per annum.

**Global Demand Outlook (MMt)** 1000 800 600 400 200 0 2020 2021 2022 2023 2024 2015 2016 2017 2018 2019 2025 China India Japan South Korea Taiwan Mediterranean/ North Africa Europe West Africa Americas Other Indian Ocean South East Asia Other East Asia Oceania ■ Others Pacific Source: IHS Markit © 2018 IHS Markit



#### **Regional Market**

- Contributing factors for Regional Market shortages and increased pricing of sized coal market, seaborne export market and Eskom supply
  - As a result of global demand increasing with not enough new mines opening up, thermal coal prices have moved upwards significantly.
  - API4 increased from around USD50 per ton in 2016 to around USD100 per ton in 2018.
  - New large coal mining projects are not being developed in South Africa due to investment sentiment in South Africa and Coal Mining (Dirty Energy).
  - Securing financing for a new coal mine is extremely difficult due to sentiment created by the Paris 2015 COP21 towards coal.
  - ➢ Eskom reaching "Coal Cliff" if not already in it

#### **Eskom Forecast**



Secured Cost-plus volumes (excluding investment)
Secured Medium Term contract volumes
Secured Fixed Price volumes



- Botswana has an estimated coal resources of 212 Billion tons in comparison to South Africa which has an estimated 30 Billion tons, half of which is in the Waterberg Region.
  - Coal is the highest revenue earner in the South African mining industry with **R131 Billion** in 2017. Botswana is missing out on significant potential revenue.
- Botswana has high grade and low cost coal mining potential.
  - Mmamabula coal fields have high grade, high yield, low sulphur and low ash coal which is ideal for Boiler applications and would be preferred by regional consumers to South African coal producers.
  - > Coal is ideal for power generation and Coal to Liquids
- Botswana has an export potential of at least 15 million tons per annum spread through various markets that can be unlocked with adequate railway infrastructure. This potential can significantly increase if unrestricted and uncongested access to ports were available.





## **Botswana Coal Industry**

- Botswana with all its potential in becoming a significant regional player in the coal industry has not materialised in the past.
  - > Botswana has only one coal mine in operation Morupule
- Herein lies the opportunity to now development the Botswana Coal Industry with the current demand shortages and future outlook of the industry.
  - Minergy will be the first opencast mine in Botswana -Currently under construction with coal sales in 2019
  - Maatla Resources follows shortly with coal sales in Q4 2019
  - > Shumba Energy also developing their first production mine
- To ensure the success, sustainability and growth of the Botswana coal industry, Government has a significant role to play.
  - Ensure the investment into the Botswana Railways infrastructure projects with the shortest lead time and partnering with the private sector
  - Further investment incentives for role players to negate logistical disadvantage to South African coal ports
  - Accelerated regulatory approval timeframes





## Thank you

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