



By SMG Technologies Africa (Pty) Ltd in
partnership with Seabury Group



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Current challenge and opportunity

South Africa faces numerous economic, environmental and socio-political challenges.

- One overwhelming challenge:

Accelerate economic growth and create more jobs.

- But South Africa is in a privileged position:

Ample idle resources high in monetary value that could be transformed into areas of great economic activity.

So how do we use this as an opportunity to create a green economy?

SMG Technologies Africa (Pty) Ltd has developed a transparent set of strategies to alleviate these challenges.



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Who is SMG Technologies Africa?

SMG Technologies Africa is a metallurgical waste recycler, and a developer and manufacturer of breakthrough high-energy solutions for industrial, environmental, and humanitarian applications.

- The South African company has **globally patented innovative technology** that was developed in the country. The technology includes manufactured high-energy additives, with a unique chemical formulation and composition, manufactured from amongst others the waste streams from the mining industry.



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What solution is being proposed?

Based on turning a current liability into an asset for the country.

- The proposed strategy suggests **re-activating idle resources** (in the form of mine dumps, slag heaps etc.) and **generating energy** from mining sector waste streams.
- The proposal is **based on patented technology** that offers competitive application benefits to the metals melting processes and structures.
- It entails the **construction of mobile plants** in areas where idle resources are available. Highly mobile processing plants have been specified, designed, sourced and priced for the project. Employees would have equity ownership in such plants - **creating new job opportunities**.
- The existing metallurgical waste stream resources are in abundance, as are the vast areas where acid mine drainage is prevalent - ensuring the **longevity** of the potential business opportunity.



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What products are used?

- High-energy products under the names **Samite™**, **Samex™** and **Magix** have been developed.
- The products are made from recycled metals, metal oxides, and additives that alter or boost the energy characteristics of materials to suit the needs of particular applications.
- These patented IP's utilize low value by-products and waste materials previously disposed of in landfills, resulting in significant environmental benefits, low raw material costs and strong profit margins.



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How do these products work?

- SMGTA's technology **converts waste streams into high energy aluminothermic products.**
- The **rapid reactions and high temperature** generation of these products out-performs conventional materials.
- Samtek aluminothermic product range enables improved results in the metallurgical industry such as: increased pressure release, improves commercial explosives performance, recovery of rich metal contents from waste streams and high BTU-containing dumps can be converted to cleaner burning fuels.



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Unique characteristics of products

- High temperature generation (much higher than the norm);
- Extremely fast reactivity;
- Improved metal recoveries;
- Safe handling and transportation;
- Waste minimization;
- Environmentally safe and friendly;
- Broad flexibility in composition;
- Excellent flow characteristics;
- Long shelf life;
- Water resistance;
- Low end-product cost;
- Toxic emission reduction; and
- Environmental compliance.



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What are the benefits of proposal?

The proposed technology has environmental and economical benefits. It proposes effective waste management that will contribute to job creation and skills development.

- **Environmental** - The technology **improves combustion efficiencies** and has also **reduced greenhouse gas** emissions. Other environmental benefits include the beneficiation of stockpiles and landfills to generate energy from waste and the reclamation of waste from acid mine drainage (AMD).
- **Skills development** - SMG Technologies Africa is entering **partnerships with academia**. The technology will become part of the curriculum of subjects such as chemical engineering and mining.



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What are the benefits of proposal?

- **Economical** - This technology also has considerable economic benefits such as **increased economic activity, job creation** and **transfer of skills**. Jobs in the formal mining sector have a significant multiplier effect.
- Each plant constructed will **create work** for previously unemployed individuals, as well as create downstream employment opportunities through skills development.
- Through the model employees would have **equity ownership** in plants, a win-win situation for all.



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Advantages of processing existing waste

Economic and financial benefits resulting from the efficient processing of existing waste resources include the following:

- The elimination and prevention of landfills and transport expenses for waste generators;
- Increased (improved) recoveries of metal contents and dramatic reduction in power consumption;
- Enhanced operating performance and increased productivity;
- Low capital requirements and favourable profit margins;
- A broad range of cost saving and/or profit generating applications;
- Additional revenue streams; and
- Cleaning up the environment without leaving a toxic footprint, resulting in the reduction of carbon footprint (carbon credits).



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In conclusion...

The technology developed by SMG Technologies Africa strongly aligns with priority areas set out in the National Waste Management Strategy which was approved by Cabinet in 2011.

- It drives the **recycling economy** and cleans up the environment **while creating jobs** and facilitating the transfer of skills.
- The ample **availability of idle resources** in the form of landfills, mine dumps, slag heaps and the like and the recycling and processing of waste material into value added, high quality product for export (and internal use) could provide the impetus in efforts to reduce unemployment.

So where to from here?

Mpumalanga - identified as a major generator of emissions, waste and landfill materials that are landfilled outside the province. Through the proposed technology this can be prevented with economic benefits.

It's therefore **an ideal pilot site.**



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