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ENERGY SAVING INITIATIVES REDUCE AFRISAM'S ENERGY INTENSITY BY 12%

AfriSam's campaign to achieve exponential energy savings has led to the implementation of a series of focused initiatives that have resulted in the company reducing its energy intensity by 12%, well in advance of the National Energy Efficiency Strategy's 2015 deadline to achieve this target as part of a countrywide initiative.

The main success factor behind this achievement has been the introduction of the company's Advanced Composite Cements, which harness by-products from the steel manufacturing and coal-fired power station industries, together with chemical activators, to improve the characteristics and performance of traditional Portland cement. Besides lowering the clinker factor, Advanced Composite Cements only utilise half the amount of thermal energy of conventional cements.

AfriSam's "Project Green Cement" was launched in 2000, primarily aimed at reducing carbon dioxide emissions, and since then the company has moved away from the pure Cem 1 Portland cements to embrace Advanced Composite Cements.

Today energy is AfriSam's number one cost reduction initiative and the company has adopted a holistic approach to energy savings to ensure steady improvements in the four primary focus areas of thermal, electrical, transport and explosives. Coal and electrical energy are by far the company's biggest costs in cement production, with the fuel costs associated with transport logistics a not-too-distant third.

"To reduce our electricity usage, we've adopted a philosophy that all our future mills will incorporate electrically efficient vertical roller mill technology," Gavin Venter, manager of AfriSam's Strategic Projects, says. "A notable success in this area was the installation of a vertical roller mill at our Roodepoort operation in 2008. Although this mill was commissioned at a 20% higher cost than conventional technology, it has since achieved a 24% reduction in electrical energy consumption. Vertical roller mills are also being earmarked for installation at our new Saldanha and Coega facilities.

“Some time ago we tasked a team of engineers with obtaining maximum energy efficiency out of each plant component and one of the outcomes has been the replacement of old drives with variable speed drives wherever possible, across all our operations. This initiative has certainly contributed to improved energy efficiencies. Where possible high energy utilisation material transport equipment, i.e. pneumatic conveying systems, were changed to mechanical conveying systems. These initiatives required significant Capex expenditure, but could be justified based on the improvement on energy intensity.”

Another more recent initiative has seen the implementation of a production and maintenance tool at AfriSam’s Ulco facility in the Northern Cape and Dudfield facility in the North-West to assist with electrical load shifting, predominantly during peak demand periods. This tool has contributed significantly to energy saving and will be implemented at the company's other operations. At the Tanga Cement plant in Tanzania, in which AfriSam has a 62.5% shareholding, it is installing a state-of-the-art five-stage precalciner kiln, which will achieve the lowest thermal energy in the Group and play a role in reducing its average thermal energy consumption.

In terms of fuel energy associated with transport, AfriSam uses as a selection criteria for subcontracted transporters a requirement that the trucks should be made out of lightweight aluminium to assist with fuel consumption. It also ensures that that the shortest haul routes are selected and that these trucks are loaded to capacity to reduce the number of truck loads. Wherever possible, use of rail transport is maximised to cut down on fuel costs.

To address the company’s blasting energy consumption at the quarry faces, AfriSam implemented ongoing efforts at all its aggregate and cement operations to optimise these costs.

Included in the ongoing drive to achieve real energy savings is an energy efficiency initiative at all operations that is seeing the installation of motion sensors, energy efficient lighting, solar geysers and solar panels.

“Various behaviour change initiatives have been implemented to empower employees with knowledge on how they can play a role in energy efficiency,” Venter says. “These include switching

off lights and air-conditioners, utilisation of natural lighting, utilisation of energy efficient lighting and the awareness to ensure that equipment is not kept operational if not required. Our employees are also encouraged to become energy efficient in their own homes by receiving assistance to apply for Eskom-funded energy efficient lighting, showerheads, solar geysers and timers.”

ENERGY SAVING PIC 01 : The vertical roller mill at AfriSam’s Roodepoort cement operation has contributed to a 20% reduction in energy consumption since its installation in 2008.

ENERGY SAVING PIC 02 : AfriSam is a globally recognised leader in the production of Advanced Composite Cements which only utilise half the amount of thermal energy of conventional cements.

ENERGY SAVING PIC 03 : In 2008, AfriSam received the National Business Initiative (NBI) award for ‘Top Performing Energy Efficiency Accord Signatory’ in the Industrial Category.

ENERGY SAVING PIC 04 : At the Tanga Cement plant in Tanzania, in which AfriSam has a 62.5% shareholding, the company is currently installing a new state-of-the-art five-stage precalciner kiln, which will achieve the lowest thermal energy in the Group and play a role in reducing its average thermal energy consumption.

ENERGY SAVING PIC 05 : In November 2012, AfriSam became the first construction materials company to sign the 49M pledge, signifying the company’s commitment to the global agenda for energy efficiency and to playing a proactive role in contributing to energy saving across South Africa.

ENDS ... AUGUST 2014

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