

## Press Release

### ***AES: powerfully positioned to provide impactful energy generation***

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As one of South Africa's leading operations and maintenance (O & M) service providers to the steam and boiler sector, AES occupies a flexible niche where it can optimise existing power infrastructure for heavy industries, while charting gradual sustainability transitions which match clients' risk profiles and commercial drivers.

AES's Commercial Director, Dennis Williams believes that the company's technical breadth, collaborative approach and commercial pragmatism provide differentiated value at the intersection of legacy thermal systems and emerging 'greener' fuel sources and technologies.

Against a background of an economy under strain from unreliable electricity supply, he points out that AES is in a particularly good position to provide impactful power generation to customers looking for reliable alternative energy sources and management.

As a specialist in integrated efficiency and sustainability solutions for industrial power generation assets, AES can support heavy industries which rely on thermal technologies and have large steam, heating and electricity demands.

"AES focuses firmly on combustion and thermal technologies rather than renewables like solar, wind or hydro. This allows us to create solutions tailored to the typical load profiles and operating patterns of industrial facilities, which have significant process heating and power generation requirements," he explains.

#### ***Pragmatic approach to power***

According to Williams, AES takes a pragmatic, commercially-focused approach to navigating the 'green versus greener' energy source or fuel debate. Rather than promoting an ideological stance on renewables and advocating overnight transitions, AES provides realistic, customised guidance which matches clients' risk appetite, infrastructure constraints and commercial drivers. Drawing on its mix of expertise and experience, AES can develop asset-specific strategies which enhance site performance - while planning gradual transitions to more sustainable energy mixes over reasonable timeframes.

Although these days much of the energy debate hinges on government's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), the so-called 'BOOT' model of funding and recent legislative changes governing small-scale embedded generation - to counter the national utility's increasing wholesale and retail tariffs, system reliability challenges and green economy

policy objectives - AES's on-the-ground experience predates these initiatives. As a result, the company has several solid case studies which illustrate the challenges and demands of small-scale power generation. With each project, the company has gained deeper and more layered knowledge.

### ***Powerful examples***

A nine year sawmill co-generation project in the Eastern Cape highlighted the types of challenges that AES faces when it comes to large and complex energy operations.

"The sawmill was an existing operation with 1950s-era boilers and turbines. They were using their own by-products for fuel, so energy-saving was not a priority. However, their recovery percentage improved so dramatically that we started running short of fuel, and the sawmill had to start transporting wood waste products from other less-efficient sawmills. This added transport and other costs to the operation, so power generation became something of a moving target. The project ended when changes in mill ownership meant power production was no longer deemed a priority," he recalls.

AES also did a detailed proposal for a biomass power project in 2008, for which the company did extensive groundwork, taking the project right up to the implementation stage.

"We gave substantial input in terms of fuel, which would have been a considerable percentage of biomass. We advised on the quality of the biomass and what the steam generation would look like. The designs were done, and we assisted with carbon credits. We also found and refurbished the steam turbine, worked with the various project contractors and oversaw the environmental assessments. We were able to answer all the technical questions about emissions and the traffic management plan. It was all done, and we were ready to go - and then the funder put on the brakes as a result of the global financial crisis. At the time we thought the pause was temporary, but unfortunately it turned out to be permanent," Williams adds.

Although AES's development work included all the technical preparation for plant layout and integration, the company does not regard the project as a failure even though it was not implemented.

Williams says that, despite the set-back, AES still has strong relationships with the client and other project role-players, and gained a lot of insight which has been used during other projects. The experience and knowledge gained has been adapted to other applications and, the turbine which AES sourced was sold off and used successfully by another client.

AES continues to research and develop new techniques for power generation to mitigate waste and improve combustion efficiency. An example, according to Williams, is pyrolysis - which employs heat without oxygen to break down feeds like biomass into solids, liquids and gaseous fuels. Though currently niche in application, pyrolysis syngas could potentially displace coal or enrich biogas for generators.

“Normal combustion takes place when fuel is burned in air. But pyrolysis is thermal processing in the absence of air. We have done deep technical assessment, and there would be a carbon residue and a pyrolysis gas, some of which could be condensed into pyrolysis oil,” he explains.

### ***Powerful ‘own-generation’***

Williams furthermore highlights the potential viability of own-power generation from an industrial perspective, despite the typically higher costs when compared to current grid supply. Production pressures, reliability concerns or emissions constraints may all incentivise self-supply - even at modestly uneconomic tariffs. This is because upfront costs are not the only relevant factor. Preventing lost production output often results in higher profits - regardless of higher energy costs.

In light of this, AES suggests a hybrid structure with renewable power purchase agreements supplying bulk needs - backed by generators burning diesel or gas for outage resilience. Though more carbon-intensive, limiting backup to a percentage of overall site consumption can still enable sustainability benefits.

“Manufacturing and industrial plants need to realise is that small-scale industrial power generation is expensive, but it also opens up possibilities. What is expensive for one company is not necessarily expensive for another. One company might need cost-effective power because they can adapt around a variable supply; while another company needs power - at any cost - because their production output is vital and they can recoup their costs through sales,” says Williams.

He notes that small-scale power generation also has other limitations: “It could mean a complete replacement of grid-supplied power. However, some companies only want replacement power to run during loadshedding. Notwithstanding this requirement – and depending on the technology - one cannot start up small-scale power generation and shut it down quickly. This typically takes a long time to start up and is ideally suited as a base-load system, especially if there are steam turbines as part of the power generation configuration. For many clients, their base-load power can be supplied by wind or solar - and they can supplement it using gas or diesel.”

### ***Powering the future***

Williams concedes that almost every single energy-intensive industry in South Africa – from mining to the tyre industry and rubber processing to the food and beverage and dairy industries – is seriously considering power replacement. Most are looking beyond cost to other factors such as reliability and sustainability.

He points out that South Africa's renewable IPP (Independent Power Producer) programme caters to large, grid-connected solar and wind projects which exceed AES's scale and current interest.

Nonetheless, the company tracks independent power developments closely, to ensure that they are in the best and most informed position to advise clients.

“The reality is that most small-scale plants could never generate power more cost-effectively than the national utility, because of economies of scale. We have done numerous assessments for clients, and there are a few projects in the development phase to supply *reliable* energy - but *not less expensive* energy.

We are very happy to do these assessments, however, because we keep learning as things change. We want to run these plants when they are finally built. As a result, we have a rich and extensively layered wealth of experience and capability to draw on, to the benefit of our clients,” Williams concludes.

## ***Ends***

**(1 337 words)**

### **Note to Editors:**

AES is a pioneering, innovative, reliable and experienced steam and boiler operations and maintenance (O & M) service provider. The company has been in existence for over 25 years and is widely regarded as the leading O & M provider in steam and boiler operations and maintenance service in South Africa. Target industry sectors include power generation, chemical, plastics and rubber, timber, pulp and paper, textiles, food and beverage, dairy, poultry and mining.

AES’s purpose is to assist industrial plants to optimise their energy production processes, and achieve energy usage best practices, through the following offerings: the mitigation of risk and the reduction of plant downtime; the procurement of efficient fuel combustion; assistance with the care of assets over the plant’s lifetime; diversification of the plant’s energy resources; improvement in site operations; and a reduction in carbon footprint.

AES subscribes to the highest ethics and operates according to high safety standards, process excellence and product and service innovation, exhibiting a commitment to quality, technology advancement and the development of human capital. AES invests heavily in training and the promotion of talented people on an equal opportunity basis into the industrial operations environment. The company believes that making a positive difference to communities and the environment is the best way to ensure that everyone benefits from good work.

AES is ISO 9001, 14001 and 45001-certified, ensuring that the company maintains a focus on achieving, benchmarking and optimising its processes and activities.

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