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etaAWARDS
TURNING IDEAS INTO ENERGY



MAGNET / ENERGYWISE
were winners in the eta Awards 2010

WINNER OF THE INDUSTRIAL CATEGORY

For proven application of sound Energy Efficiency Principles



Above Right to Left: Graeme Harding (Magnet) is presented with the Award by Brian Dames (Eskom CEO) and Daniel Dube (Eskom Non Executive Director)

INDUSTRIAL CATEGORY WINNER

For the application of sound energy efficiency principles for at least 12 months in the industrial sector, for instance projects at manufacturing plants, smelters, or mines.

The Magnet / Energywise partnership won for their energy cuts at Sappi's Tugela river plant. The installation has managed save an average of 1.8MW in the evening peak period as well as an overall energy saving of 500kW hours, 25% of the plants original load. Even more impressive is the payback period of around 1.4 years.

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REDUCING POWER IN PEAK PERIODS IS SIMPLY ENERGYWISE

When a single energy efficiency project achieves an average saving of 500kW, there is no doubt it deserves its nomination in the Industrial category of the annual eta Awards. Delivering such high levels of energy savings while also reducing the peak time load on Eskom's electricity grid makes such a project even more noteworthy.

Durban's Magnet Electrical and Energywise was initially called in by paper and pulp manufacturer Sappi to undertake a pump audit at its Tugela River Pumps plant, with a view to possibly upgrading one of the pumps in the plant. However, following more detailed investigations, the Electricity Service Company (Esco) soon found itself involved in a far more comprehensive energy efficiency project.

Graeme Harding, Energy Projects Manager at Magnet says that Eskom was looking at ways to reduce the load on its grid during peak hours. With this in mind, it contributed extensively to a full scale load shedding and energy efficiency project at the plant. The size and scope of the implementation increased dramatically from the initial focus on a single pump upgrade to one that included seven new pumps.

"In addition to installing the seven new pumps, we also put a new control system in place, along with new control valves and piping throughout the plant. However, the key saving is made because Sappi is now able to shut down the entire plant between 6pm and 8pm every night, reducing the strain on Eskom's power grid," he says.

"This is no mean feat. Prior to this, the Tugela River Pumps plant was operating 24 hours a day, seven days a week. However, the fact that we installed the new pumps and control system means that shutting the plant down is now possible, because the new equipment makes automatic start-up possible – something that couldn't be done before."

According to Harding, the real benefits of this project lie in the fact that in addition to reducing the strain on the grid through the evening shut downs, the new equipment means less electricity is used during normal operation. He points out that the plant was drawing on average some 2.2 MW of power, whereas this has now been reduced by 0.5 MW (500 kW) on average.

He says that the toughest element of the assignment was the initial part of the project, prior to the actual pump replacement. Harding points out that Magnet had to conduct a very thorough series of measurements and calculations around pumping and processing capacities.

"Of course, this is what we do best, so the audit and analysis we conducted was focused on delivering the most meaningful and ongoing contribution to achieving energy savings at the plant."

He says that the project would never have achieved the success it has were it not for the major contribution made by Eskom. The total project value was approximately R8.5 million, according to Harding, of which Sappi's portion came to some R2.2 million.

"However, the tangible value of this project can be seen in light of the fact that Sappi's energy savings are such that payback will occur in a little over one year," he says, indicating that the savings delivered are R1.6 million per annum.

"Perhaps what is most beneficial to us is the fact that the principles of the analysis can be repeated, although it is obviously not a one size fits all solution. Nonetheless, as a registered Esco, we perform any number and variety of these types of projects, so I have no doubt that we will be able to apply this valuable experience to other demand side management projects Magnet may become involved in, as part of the national drive to save energy," he concludes.

Article by Eskom