

(parabolic trough) or dual axis (heliostats) tracking systems. All the needs for mirror tracking control are integrated into the same board, including fibre optic upstream communications, electrical protections and solid state relays, reducing the number of elements and simplifying the tracker control cabinets design for these projects.”

Schneider Electric’s DCS solution manages the Khi Solar One and KaXu Solar One’s operations at three levels: the physical solar field elements and data acquisition; the communications network and concentrators along the solar field; and the main controllers for the plant operation.

As highlighted by Moreno Valderrama, a programmable logic controller (PLC) application adjusts the position of each parabolic mirror according to the angle of the sun’s rays and the security parameters to maximise energy generation. The system communicates

thousands of real time data among the mirrors, the three receivers on the top and the weather system to provide vital information for monitoring and controlling the solar field. At the plant itself, the DCS manages data in a user-friendly interface to create an efficient system that streamlines plant operations alongside a data analytics platform for business intelligence purposes.

In addition to providing the technology solutions, Schneider Electric’s highly skilled technicians, who hold vast experience in CSP plant technology, will remain on-site for the commissioning period to ensure a smooth start-up once the plant begins official operations in the near future.

Schneider Electric worked on its first CSP project with Abengoa in 2005. Since then the company’s solutions have been selected for different CSP plants technologies constructed by different clients across Europe, the United

States, North Africa and the Middle East, with more than 1 800 MW and 30 commercial power plants operating with its solutions.

“It has become common knowledge that consumption of electricity is growing disproportionately as industry and domestic systems require ever-greater amounts of energy. An advantage for South Africa is that it has an excellent climate, solar irradiance and numerous kilometres of roof space available, lending itself to renewable energy solutions.

“Schneider Electric is committed to providing energy management and process automation solutions that are tailor-made for the country and the CSP business. The company is especially pleased to play an active role in building South Africa’s green economy through the company’s solar solutions, providing green energy with zero carbon emissions,” concludes Moreno Valderrama. □

Local specialist to retrofit 316 mine fans

Local fan specialist and OEM, MechCaL, has been appointed by the Anglo Platinum group to install 316 of their innovative fans at seven of the group’s mines.

The official order came through in July this year but delivery and installation of the fans has now begun and will continue until March 2015. According to Gavin Ratner, director and spokesperson for MechCaL, the mines that will now benefit from MechCaL’s technology include Dishaba, Tumela, Bathopele, Khuseleka, Thembelani, Siphumelele and Twickenham. MechCaL will be supplying close to 316 fans ranging from 22 kW, 762 mm fans to the standard 762 mm, 45 kW fans as well as a few of its 75 kW, 1 016 mm units for underground use.

MechCaL has become well-known for innovative designs and use of technology to manufacture fans for the mining industry. Their patented design is coupled with the use of lightweight materials to create fans that boast increased efficiency, operational and energy savings, and lower mean time between failures. Ratner explains that the type of existing fans being used underground at these mines are cambered plate fan types that are traditionally very inefficient. “At best they perform at 60% efficiency and have, in most cases, been refurbished numerous times, resulting in a degradation of performance,” he states.

It was this unique technology that

caught Anglo Platinum’s attention says Gerhard van den Berg, group energy engineer for Anglo American Platinum. “We replaced 36 fans at our Union Mine with MechCaL fans as part of an Eskom Demand Side Management project. The success of the project prompted the company-wide roll-out of MechCaL fans,” he says.

The fans installed at Union Mine were aerodynamically superior to the fans that were used previously and proved savings of 19 kW per fan when compared to the previous fans with the same service delivery. Van den Berg comments on MechCaL’s ability to problem solve for its clients in the field saying: “Whilst the initial fans were made in composite materials, MechCaL replicated them in

steel, providing a more robust solution while still maintaining significant power savings.”

MechCaL’s designs have been proven to provide 80% or higher efficiency in performance and deliver higher flow rates. This results in significant savings in power drawn from the electrical power grid. Added to this MechCaL has developed advanced VSD systems, which incorporate intelligent control that enables ventilation on demand for secondary fans. These systems will actively control delivery to ensure optimal system savings through reducing – or at times increasing – fan delivery to ensure that the mines are properly ventilated at all times. According to Ratner, this will ensure that the correct flows, temperatures and gas concentrations are adhered to, and will optimise the efficiency of the entire system. □



MechCaL’s fan designs provide 80% or better performance efficiency and can deliver higher flow rates.