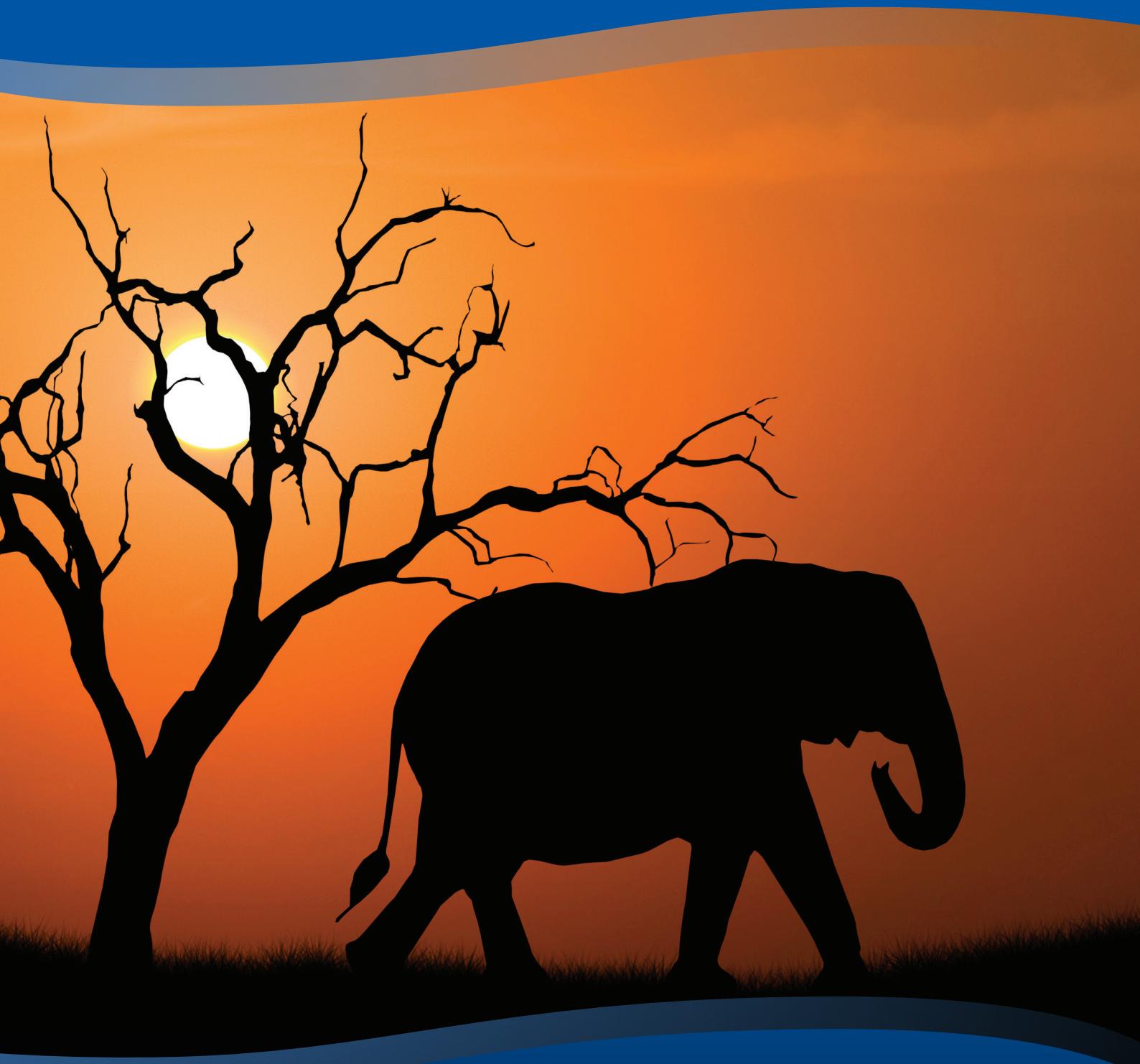


CASE STUDY

SOUTH AFRICA

Middelburg Mines



MPUMALANGA SOUTH AFRICA MIDDELBURG MINE


Location:

Mpumalanga South Africa

System Installed:

Hot Water Requirement: 87,000 litres/day at 60°C.

Solar Collectors:

 200 x Solahart Bt Collectors (400m² in total)

Storage System:

5 x Solahart 5000 DBe Heat Store II (25,000 litres in total). Electrically boosted.

Hybrid Boosting:

10 x 16 kW Solahart Commercial Heat Pumps

Estimated Energy Saving: 1,200,000 kWh per year (1,550 tonnes CO₂ per year from a coal fired power station).

BHP Billiton Middelburg Mine is found on the coal mining belt next to Witbank in Mpumalanga, South Africa. The mine is predominantly an opencast coal mine.

The mine runs three shifts with 400 miners in each, with change houses provided for the workers' showering and laundry requirements. Solahart in conjunction with our distributor, Selected Energy, was tasked to provide an effective and economical hot water solution to meet the demands for the mine.

The five change houses each require approx 17,500 litres per day of hot water for 120 showers and 5 laundries. A Commercial Solar and Heat Pump hybrid solution was engineered to meet the requirements.

Solahart has combined our extensive solar water heating experience with efficient heat pump technology, to provide a commercial water heating system with outstanding energy efficiency; a 'hybrid' solution that can provide some powerful synergies.

Using solar energy to generate hot water typically provides savings of 50% to 80% of the daily water heating energy requirement, with the remaining 'boost' energy traditionally supplied by electric heating elements or fossil fuel burning methods. Heat Pumps use refrigeration process technology to efficiently extract energy from the surrounding ambient air, and can operate day or night, rain or shine. Our Commercial Heat Pumps typically have a Coefficient of Performance (COP) greater than 4.0* (@20°C/60%RH), which means that more than 75% of the energy used to produce hot water is free from the atmosphere!

