

CASE STUDY



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NOVEMBER 2009

BHP Billiton Illawarra Coal Appin Tower Power Project

Illawarra Coal operates three underground mines (Appin, West Cliff and Dendrobium) in the Southern Coalfields of NSW. The mines produce premium quality hard coking coal used domestically for steel making and also exported for use internationally.

Appin and West Cliff mines extract coal from the Bulli coal seam. The Bulli seam contains relatively high levels of methane which, for safety reasons, is drained to ensure safe working conditions. The methane is drained through bores drilled ahead of mining. The methane is drawn continuously to the surface by vacuum pumps where, at Illawarra Coal, it is utilised as fuel to generate electricity.

More than 10 years ago Illawarra Coal, in partnership with Energy Developments Limited (EDL), developed the Appin and Tower Methane Gas Engine Power Plants. The Appin Power Plant consists of 54 x 1 megawatt gas engines and the Tower Power Plant consists of 40 x 1 megawatt gas engines. The Tower Power Plant is located at the Appin West Mine near Douglas Park.

The Power Plants were designed to utilise the predicted volumes of captured mine methane over the next 15 years.

In 1997, Illawarra Coal purchased the nearby West Cliff coal mine, another underground mining operation. Methane utilisation was extended to include West Cliff by constructing a 6.8km overland pipeline to transport drained methane from West Cliff for utilisation at the Appin Power Plant. The gas collected from West Cliff generates an additional 20 megawatts of power at the Appin Power Plant.

Burning the coal seam methane to produce electricity, rather than emitting it directly to the atmosphere, has significant greenhouse gas abatement benefits. Methane has 21 times the greenhouse warming potential of CO₂, and burning it results in much lower CO₂-equivalent emissions. It is estimated that the Power Plants reduce greenhouse gas emissions by over 2 million tonnes CO₂-equivalent per year. The Appin

and Tower Power Plants recover some of the substantial costs of methane drainage by selling the electricity generated for distribution on the State electricity grid. The Power Plants have the capacity to generate enough electricity to power approximately 60,000 homes in NSW.



Appin Power Plant

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