



## United Collieries Flaring Project

United Collieries is a longwall mining operation located 16 kilometres south west of Singleton in the Hunter Valley. The mine is relatively 'gassy', meaning a significant volume of methane is released from the coal seam and surrounding strata during mining.

To ensure safe working conditions the methane is drained from the coal seam prior to extraction. For the first four longwall panels, methane was vented into the atmosphere through a series of pre drilled gas wells. Methane has 21 times the global warming potential of carbon dioxide, so this release of methane to the atmosphere contributed to the mine's greenhouse gas emissions.

In 2005, Xstrata Coal NSW (95% owner of United Collieries) voluntarily elected to become a benchmark participant in the NSW Greenhouse Gas Abatement Scheme (GGAS). Under the Scheme, electricity customers who use >100 GWh per year can apply to join and set their own greenhouse gas emission benchmark. To reach the benchmark, participants generate Large User Abatement Certificates (LUACs) by reducing on-site greenhouse gas emissions not directly related to the consumption of electricity. LUACs are non-tradable and can only be surrendered by the participant to meet their own greenhouse gas emission benchmark.

United Collieries looked at several ways to reduce the impact of methane gas emissions from the mine including gas flaring and the use of gas for electricity generation. Unfortunately, the life of mine and the inability to produce a continuous gas stream made electricity generation unattractive to electricity generators. United developed a series of pipelines from the gas wells that could collect mine gas and transport it to a set of three flares located on the surface above the mine. Flaring of methane creates significantly lower greenhouse gas emissions than free venting methane into the atmosphere.

Detailed risk assessment was carried out to minimise the risks associated with locating flares above the active mining operations. A real time monitoring system was installed including safety measures to allow the flares to shut down when critical gas concentration and temperature

thresholds are reached at various points throughout the system. The monitoring system also records the flow rates and methane concentrations required to calculate LUACs.



United Collieries flares

Each of the flares has the capacity to consume up to 200 litres of gas extracted from the mine per second, abating the equivalent of 125,000 tonnes of CO<sub>2</sub> per year. Any shortfall in meeting the agreed benchmark under the GGAS can be met by purchasing tradable abatement certificates from certified Abatement Certificate Providers.

Under the GGAS, and through its commitment to the Federal Government's Greenhouse Challenge Plus program, Xstrata has committed to abating over 350,000 tonnes of methane from underground mining operations, including United Collieries.