



# Determination of a comprehensive experimental input parameter-set for testing established CBM & ECBM Models

---

## **Problem and Aims:**

The PhD project shall accompany the CBM exploration and production activities of Arrow Energy Australia to improve the fundamental understanding the processes controlling prospectivity and productivity of CBM plays.

The aim is to identify the key parameters of the pertaining physical and physico-chemical processes, to rank them according to their relative importance and to compile and optimize input parameter sets for predictive and descriptive modelling.

The description, numerical modelling and prediction of coalbed methane (CBM) and enhanced coalbed methane (ECBM) scenarios represent a serious problem due to the interaction of numerous processes. Various CBM/ECBM modelling packages are available and have been applied for different case histories. However, in most instances the parameter sets are incomplete or only poorly constrained. The purpose of this thesis is to closely accompany a CBM exploration and production project with a broad range of experimental methods. These will comprise high- and low-pressure gas sorption experiments, pore and cleat system characterization, assessment of mechanical properties, two-phase flow experiments and 4D permeability measurements.

This comprehensive parameter set will be used as an input for CBM/ECBM models with subsequent testing and sensitivity analysis.