



Impacts of Coal Seam Gas (Coal Bed Methane) Extraction on Water Resources in Australia

David Post

CSIRO, Land and Water, Canberra, Australia (david.post@csiro.au)

While extraction of methane from shale gas deposits has been the principal source of the recent expansion of the industry in the United States, in Australia extraction of methane from coal bed methane deposits (termed 'coal seam gas' in Australia) has been the focus to date. The two sources of methane share many of the same characteristics including the potential requirement for hydraulic fracturing. However, as coal seam gas deposits generally occur at shallower depths than shale gas, the potential impacts of extraction on surface and groundwater resources may be of even greater concern.

In Australia, an Independent Expert Scientific Committee (IESC) has been established to provide scientific advice to federal and state government regulators on the impact that coal seam gas and large coal mining developments may have on water resources. This advice is provided to enable decisions to be informed by the best available science about the potential water-related impacts associated with these developments. To support this advice, the Australian Government Department of the Environment has implemented a programme of research termed 'bioregional assessments' to investigate these potential impacts. A bioregional assessment is defined as a scientific analysis of the ecology, hydrology, geology and hydrogeology of a bioregion with explicit assessment of the potential direct, indirect and cumulative impacts of coal seam gas and large coal mining development on water resources. These bioregional assessments are currently being carried out across large portions of eastern Australia underlain by coal reserves. Further details of the programme and results to date can be found at <http://www.bioregionalassessments.gov.au>.

The bioregional assessment programme has modelled the impacts of coal seam gas development on surface and groundwater resources in three regions of eastern Australia, namely the Clarence-Moreton, Gloucester, and Namoi regions. This presentation will discuss the overall approach taken, and discuss how the results of these modelling studies will be used to evaluate the impacts of the depressurisation of coal seams on ecological, economic and socio-cultural assets that are dependent on surface and/or groundwater.