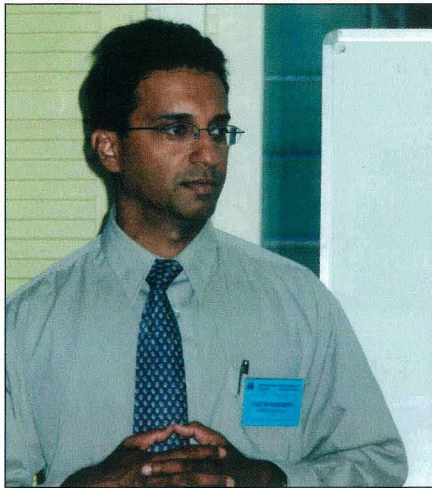


A Journey Through The Coal Seam Gas System of The Southern Sydney Basin

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Dr Mohinudeen Faiz

This most interesting paper, which was an update on his APPEA paper of last year, was presented at our February meeting and attracted some 60 members and visitors, which was one of the largest audiences we have had all year.

Dr Mohinudeen Faiz is a geologist with over 20 years experience in various fields, including ground water exploration, petroleum source rock studies, coal seam gas,

and gas outburst studies for coal mines. He is currently employed as a research scientist at CSIRO Petroleum in North Ryde and his main research interests include geological controls on gas distribution in coal measures sequences, CO₂ sequestration in coal seams, and organic petrology of petroleum source rocks. Faiz also coordinates integrated coal seam gas research studies conducted by CSIRO Petroleum.



Part of the audience.

Summary of talk

Permian coals of the southern Sydney Basin contain a large gas resource comprising a mixture of mainly hydrocarbons and carbon dioxide derived from thermogenic, magmatic and biogenic sources. The total gas contents range from <1 m³/t to >20 m³/t and variations in the proportion of these various gaseous components are related to the timing of origin, tectonic history, geological structure and ground water flow.

Coal seams were at maximum burial depths during the early Cretaceous and, as a result a large amount of hydrocarbon gases (methane,

ethane and higher hydrocarbons) was generated by these coals under high temperatures (>120°C). Most of this thermogenic, wet gas (gas containing ethane and higher hydrocarbons) was lost from the shallow coals during post-Cretaceous uplift where over 2 km of post-Permian sediments were eroded from the basin. In many areas of the basin, the lost gas has been subsequently replaced by secondary methane (dry gas) that was generated as a result of bacterial alteration of pre-existing wet gases, carbon dioxide and coal. The high methane production 'fairway' in the southern Sydney Basin is confined to these areas where secondary biogenic methane generation has occurred. ■