

Status of Exploration on Shale Gas Resources in India

A. Boruah* (University of Baroda, Gujarat, India)

Natural gas is rapidly substituting crude oil to suffice the growing energy requirement of today's world. The rising oil prices, high input cost in exploration and production of hard oil resources and relative abundance of gas resources have fuelled the interest towards gas resources. But the consumption of natural gas is increasing rapidly and the growing gap between natural gas consumption and supply has spurred interest in development of unconventional gas resources. Coal Bed Methane, Basin Centred gas, shale gas, underground coal gasification (UCG), gas hydrate are the important unconventional natural gas resources. India is having the immense prospects of unconventional shale gas resources. Commercial exploration of these shale gas resources can effectively make the global natural gas curve more elastic.

The data base on the shale gas potential in India is rather sketchy and requires exhaustive investigations of all the shale beds having significant organic matter and maturity. The present paper deals with the investigations and evaluations of shale gas

resources of prospective sedimentary basins in India. It also attempts to discuss the gas generation and retention mechanisms within shale rock. The available data suggests that the shale gas evaluation requires detailed study of the; (i) type and amount of organic matter, (ii) presence of trace elements which can enhanced the chemo-genesis, (iii) magnitude and duration of thermal maturity, etc. Thermal maturity, sorbed gas fraction, reservoir thickness and geographic extent, total organic content, volume of gas in place, mineralogy, water saturation, fracture types, reservoir heterogeneity etc are the controlling factors in shale gas production. But both the geological and geochemical parameters may show wide variations in different shale gas systems and even most of the world's commercial shale gas reservoirs exhibit wide ranges of these parameters, hence making it more difficult for establishing the resource potential of the shale gas.