Opportunities for Coal-to-Gas in China

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ABSTRACT

China is the world’s largest consumer of coal, producing more than two-thirds of its electrical power from coal. Coal Bed Methane (CBM) and Coal Mine Methane (CMM), are two promising methods to generate the cleanest-burning fuel with the highest forecast demand in China, which can even be extended to Coal-to-Liquefied Natural Gas (CLNG) production for yet more flexibility for the market. A further advantage is that preventing methane escaping into the atmosphere has a bigger impact on carbon emissions than reducing coal burning. Thus, considerable effort is being on focused on introducing commercial-scale plants as quickly as possible. This paper looks at the technical and practical challenges to monetizing coal gas in China, with examples of recent experience from actual projects.

INTRODUCTION

The announcement in March 2010 that Australia’s Arrow Energy has agreed to a takeover bid from Royal Dutch Shell and PetroChina has raised interest again in the Coal Mine Methane (CMM) and Coal Bed Methane (CBM) sectors in China.

The Chinese government has made CBM and CMM top priorities for development, with a target of at least 10 billion cubic metres of methane being produced per annum by 2010. Indeed, the plan is for 10% of China’s natural gas to be produced from coal mines and China and the U.S. have agreed to jointly develop 15 large-scale coal bed methane projects as part of the second Strategic Economic Dialogue held in 2008. To encourage the large-scale technical input and foreign investment required the Chinese government is actively encouraging the coal gas industries by subsidies and other incentives to maintain the momentum.

China’s natural gas demand is growing rapidly, from 80 billion cubic meters (bcm) in 2008 to 110 bcm in 2010 (China City Gas Society, 2009), similar to the United Kingdom’s annual consumption. Gas supplies, though, are not keeping pace and some 20 bcm are expected to be imported in 2010 to balance demand. This supply gap will become increasingly acute, especially if predictions of 300 bcm/year demand by 2020 (Zhou, 2010) are realized. Imported pipeline and Liquefied Natural Gas (LNG) can only provide some of the demand. China desperately needs more indigenous supplies or face supply shortages which could seriously hold back growth. Coal Bed Methane (CBM) and Coal Mine Methane (CMM) are significant gas resources that could provide more than a quarter of China’s gas demand by 2020.

The potential of these sources has been acknowledged and China has been promoting CBM and CMM projects for a decade, fast-developing a leading position in exploiting coal gas.