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**COALBED GAS and SHALE GAS: EXPLORATION and RESOURCES in EUROPE**

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“Unconventional” gas is no longer unconventional. The exploitation of gas resource plays in North America has now developed to such an extent that almost 50% of US gas production comes from coalbed gas, tight sand gas and shale gas. Although shale gas is the smallest contributor to US resource play gas production, it is the fastest growing. In the five-year period between 2002 and 2007 US shale gas production more than doubled, from 1.5 billion cubic feet (bcf) per day to 3.25 bcf / day.

In eastern Australia, meanwhile, the world’s third largest coalbed gas producer after the US and Canada has doubled production between 2006 and 2008 and the rate of increase is such that seven LNG export schemes for Queensland coalbed gas have been proposed, with the first schemes expected to be online by 2014.

What lies behind this dramatic growth in gas resource play production? In part it reflects declining production from traditional reservoirs and a desire to increase energy security by producing from indigenous sources. The principal drivers, however, have been technological advances in drilling and completion. With little exploration risk, the development of gas resource plays has become very much like a manufacturing process.

Europe is particularly well-suited to gas resource play exploitation on account of its large market, established pipeline infrastructure, increasing demand and current dependence on gas imports.

Coalbed gas exploration has taken place in at least 11 European countries and even larger potential resources exist on the periphery of Europe in Russia, Ukraine and Turkey. Estimates of in-place resources within Europe are variable but indicate some 300 tcf of gas-in-place. The Czech Republic, France, Germany, Poland and the United Kingdom are also significant producers of coal mine methane. Some 78 CMM projects are currently active in these five countries. Commercial coalbed gas production in the UK commenced in 2009. In Poland the RECOPOL project has demonstrated the feasibility of enhancing coalbed gas production by injecting, and thereby sequestering, CO<sub>2</sub>.

Shale gas exploration in Europe is in its infancy but investigations are under way in seven countries. An indication of the interest is the involvement of ExxonMobil, Shell, OMV and a recent farm-in to Polish acreage with shale gas potential by ConocoPhillips. As investigations are at such an early stage, there are no reliable estimates of in-place resources. A study made in the 1990s, extrapolating from US shale gas characteristics, concluded that the European in-place shale gas resource could be in the order of 550 tcf, significantly greater than estimates for coalbed gas resources.