

Economic Evaluation of Bowland Shale Gas Wells Development in the UK

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Abstract : The UK has had its fair share of the shale gas revolutionary waves blowing across the global oil and gas industry at present. Although, its exploitation is widely agreed to have been delayed, shale gas was looked upon favorably by the UK Parliament when they recognized it as genuine energy source and granted licenses to industry to search and extract the resource. This, although a significant progress by industry, there yet remains another test the UK fracking resource must pass in order to render shale gas extraction feasible - it must be economically extractible and sustainably so. Developing unconventional resources is much more expensive and risky, and for shale gas wells, producing in commercial volumes is conditional upon drilling horizontal wells and hydraulic fracturing, techniques which increase CAPEX. Meanwhile, investment in shale gas development projects is sensitive to gas price and technical and geological risks. Using a Two-Factor Model, the economics of the Bowland shale wells were analyzed and the operational conditions under which fracking is profitable in the UK was characterized. We find that there is a great degree of flexibility about Opex spending; hence Opex does not pose much threat to the fracking industry in the UK. However, we discover Bowland shale gas wells fail to add value at gas price of \$8/Mmbtu. A minimum gas price of \$12/Mmbtu at Opex of no more than \$2/Mcf and no more than \$14.95M Capex are required to create value within the present petroleum tax regime, in the UK fracking industry.

Keywords : capex, economical, investment, profitability, shale gas development, sustainable

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020