

# Scotland's geology will not allow for successful fracking, says academic

Will Humphries

Scotland could not sustain a productive shale gas industry and would need thousands of fracking sites across the central belt rather than the 300 estimated, a top geologist has claimed.

Roy Thompson, of the University of Edinburgh, said that analysis of US government figures on the American shale gas industry showed that Scotland had the wrong geology.

Professor Thompson, a fellow of the Royal Society of Edinburgh, said that geochemical, rock-physics and production data for 25 American shale gas systems allowed a comprehensive analysis of potential in Scotland.

Energy companies want to open up a shale gas field to the west of the Firth of Forth but he said that the data showed the shales were below the temperatures needed for effective gas generation and were at pressures too low for the gas to rise naturally to the surface, so would require extra pumps and compressors.

They also sat at too shallow a level,

increasing the risk that surface groundwaters would be contaminated. All these indicators meant the Scottish basins did not compare favourably with even the worst performing US systems.

He said: "I personally wouldn't invest any money in it at all and I think there is a big contrast with the north of England. Exploration in the north of England is a much better bet."

Reports into the possibility of a Scottish shale gas industry by KPMG, commissioned by the Scottish government, claim that 20 pads with 15 wells each would be enough to extract 947 billion cubic feet of gas — equivalent to five and a half years of Scottish consumption.

The Scottish government has launched a four-month public consultation over whether to allow unconventional extraction. It then plans to make a recommendation that will go before MSPs for a vote this year.

Professor Thompson said evidence from US shale gas production showed that wells operating in geology similar

to Scotland's central belt produced between 0.5 and one billion cubic feet of gas in their lifetime.

"KPMG's central scenario of 947 bil-



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lion cubic feet of gas would require around 1,000 wells distributed right across the central belt," he said, "while its high scenario of 2,934 billion cubic feet would require considerably more.

"When you match Scottish geology with similar US situations you find production is really low."

A British Geological Survey into Scotland's shale gas reserves said it was too early to forecast how much gas could be extracted and that drilling and testing of wells would have to take place before an estimate could be made.

A report by the Royal Society of Edinburgh said that Scotland had no guarantee of any economically producible unconventional gas.

A few years ago Poland was the great hope in Europe for shale gas but the industry has collapsed. In the US, the shale gas industry has created a domestic energy boom but it requires the digging of hundreds of wells in one region as their lifespans are shorter than expected.

The KPMG report assumes each well will have a productive life of 15 years. Data from the US shale gas industry shows this is optimistic.

Tom Pickering, of Ineos Shale, said: "We will need to drill some vertical exploration wells to take samples of the rocks for laboratory analysis of their structure and gas content. If these data are encouraging we would seek to drill and frack horizontal wells to test production flows. Ineos is prepared to undertake the scientific endeavour to establish whether or not a shale gas industry is viable in Scotland."

