

## **A Commercial Evaluation of Refracturing Horizontal Shale Wells**

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### **Abstract**

Low commodity prices and high costs associated with drilling and completing multistage horizontal shale wells have forced the hand of many US independent E&Ps. Firms are curbing new drilling activity in shale plays and instead are focusing on improving project efficiencies and controlling cash flow. Refracturing programmes are gaining momentum as it costs less to restimulate a producing well versus drilling an entirely new well.

Despite the bullish view, some players have about refracturing, uncertainty remains surrounding the well selection process and the long-term commercial success of refracs. This paper seeks to address this uncertainty by assessing the economic performance of refracturing programmes in three well-developed shale plays - the Bakken, Barnett and Haynesville.

Sensitivity analysis shows that refractured wells, in the Bakken and Haynesville in particular, can generate higher Net Present Value (NPV) than drilling a new well. Refractured horizontal wells in the Barnett, in contrast, show evidence of reduced recoveries and in some cases even value erosion.

Our analysis of historically refractured wells in the Bakken, Barnett, and Haynesville also leads us to believe that the variation in outcomes is too wide for refracturing to be adopted on a large scale today. While some restimulation events indeed have a profitability index (P/I ratio) larger than a new well, others (even in the same play) generate very poor economics. We believe that technology will play a key role in making this asset management approach more common, particularly in decreasing the number of failed restimulation attempts.