

# MARKET DYNAMICS OF NATURAL GAS IN THE WEST

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## ABSTRACT

*I will discuss the fundamental factors influencing prices in the western region of the U.S. More than any other region in North America, the west has historically experienced the greatest price volatility. I will offer my perspective on the current market and what we might expect to see in the future. My presentation will provide participants a "marketing company's" view of this complex and dynamic marketplace by analyzing supply, demand, and other variables that may impact the wellhead price in the Rocky Mountains*

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# NET EFFECTIVE PAY DETERMINATIONS USING NUCLEAR MAGNETIC RESONANCE AND BOREHOLE IMAGERY

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## ABSTRACT

*In order to evaluate reservoir economics, geologists and engineers need the parameters of effective permeability ( $K$  effective) and net reservoir pay ( $h$ ). Integrating nuclear magnetic resonance (NMR) technology with borehole imagery can significantly improve estimates of these two parameters. In clastic reservoirs, NMR is used to differentiate and measure clay-bound water, capillary-bound water and free fluid. From these data, permeability effective to gas can be estimated. Borehole imagery is a high-resolution tool that can be used to refine measurements of  $h$  by differentiating net pay from gross reservoir thickness.*

*Disappointing well completions might be avoided with more realistic economic evaluations. Using NMR to measure  $K$  effective is a relatively common practice. However, using borehole imagery to evaluate  $h$  is relatively uncommon. Estimates of  $h$  are needed for hydraulic stimulation design and for estimations of hydrocarbons in place. Usually engineers and geologists calculate  $h$  from a conventional gamma ray curve. This practice can significantly overestimate  $h$ . In some cases, using borehole imagery has improved the accuracy of  $h$  by a factor of two.*

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