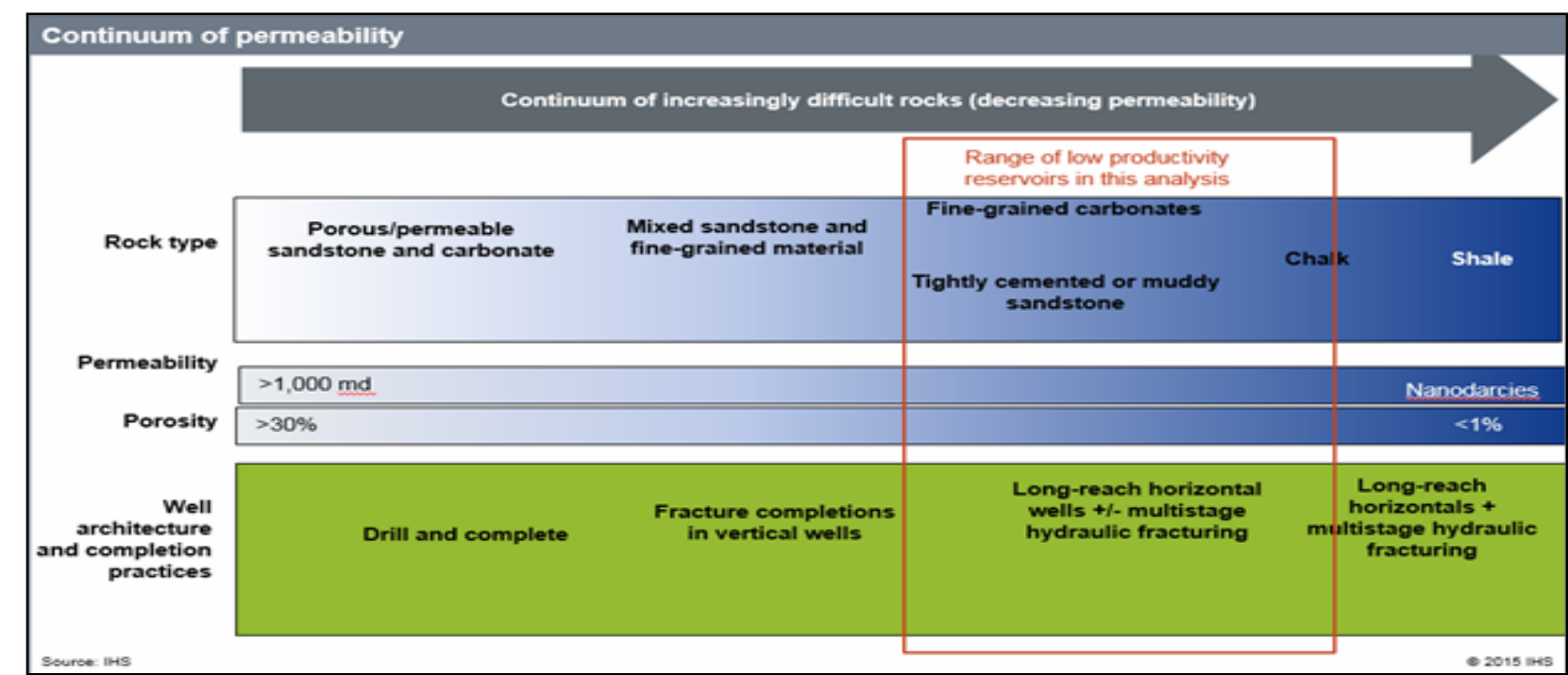


# Tight Conventional Revival

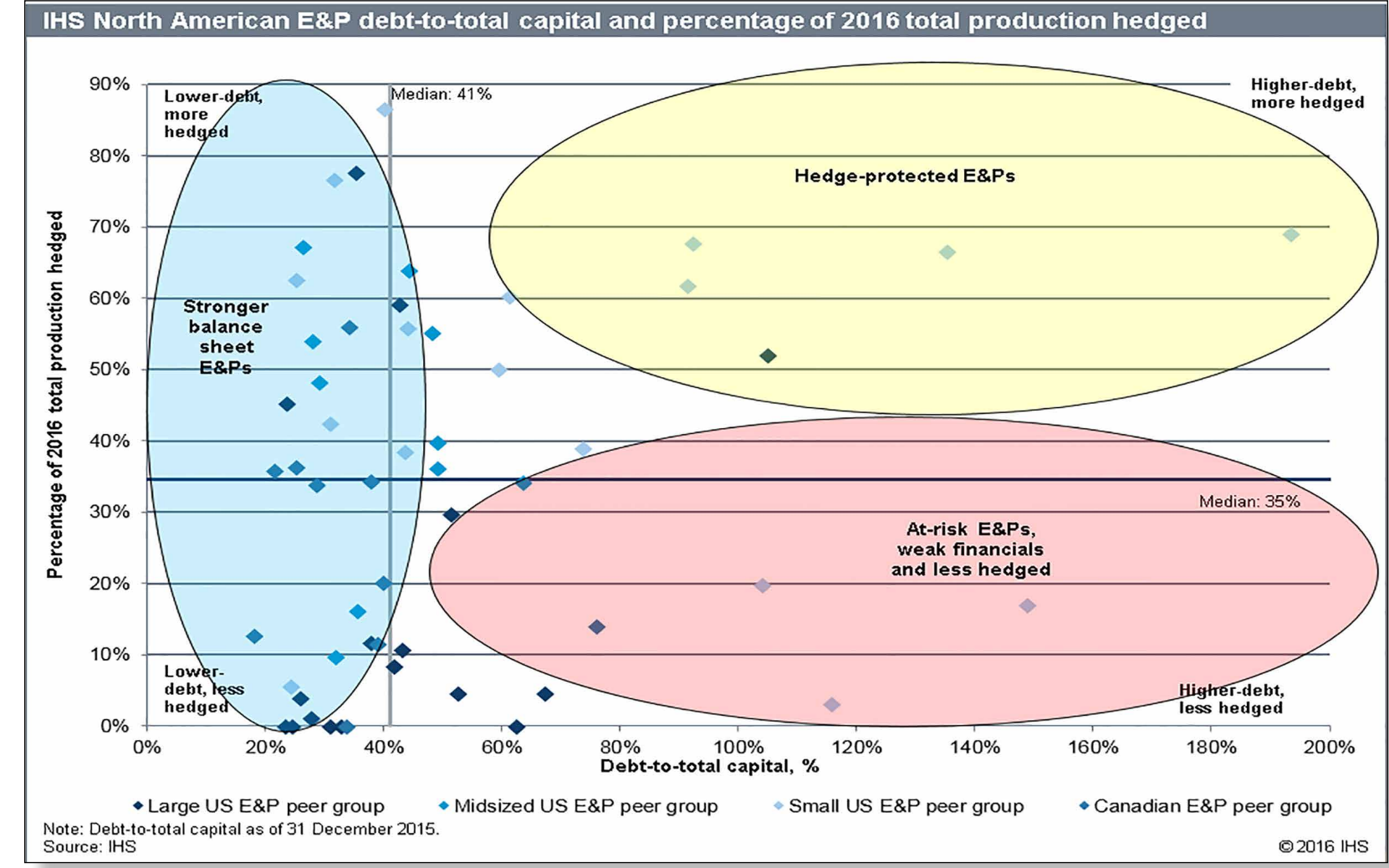
A new IHS report finds that the tight conventional domain is benefitting from the export of technology used to unlock true unconventional zones. The report identifies formations that are being horizontally drilled today plus opportunities in other formations with little drilling to date. Low commodity prices pose huge economic questions—how can operators manage portfolios to survive the downturn and position themselves for the future. In the US, core sweet spots in the successful unconventional oil and gas plays are tightly held and many new play unconventional candidates have been tested without much success.

The average global recovery factor for a conventional oil reservoir is 34% with two-thirds of the oil still in the ground. Many tight conventional oil reservoirs demonstrate recovery factors of 15 percent or less – substantially lower than the average 34 percent for conventional oil reservoirs. There is significant upside potential to boost recoveries from tight conventional reservoirs from application of unconventional technologies. Because these tight conventional reservoirs are in areas with older vertical wells that can be re-entered for horizontal drilling and because the rock properties do not require the size and cost of a hydraulic frac job needed for an unconventional zone, completion costs can be significantly reduced. Also with delivery infrastructure already in place, overall breakeven costs to develop the projects are much lower.



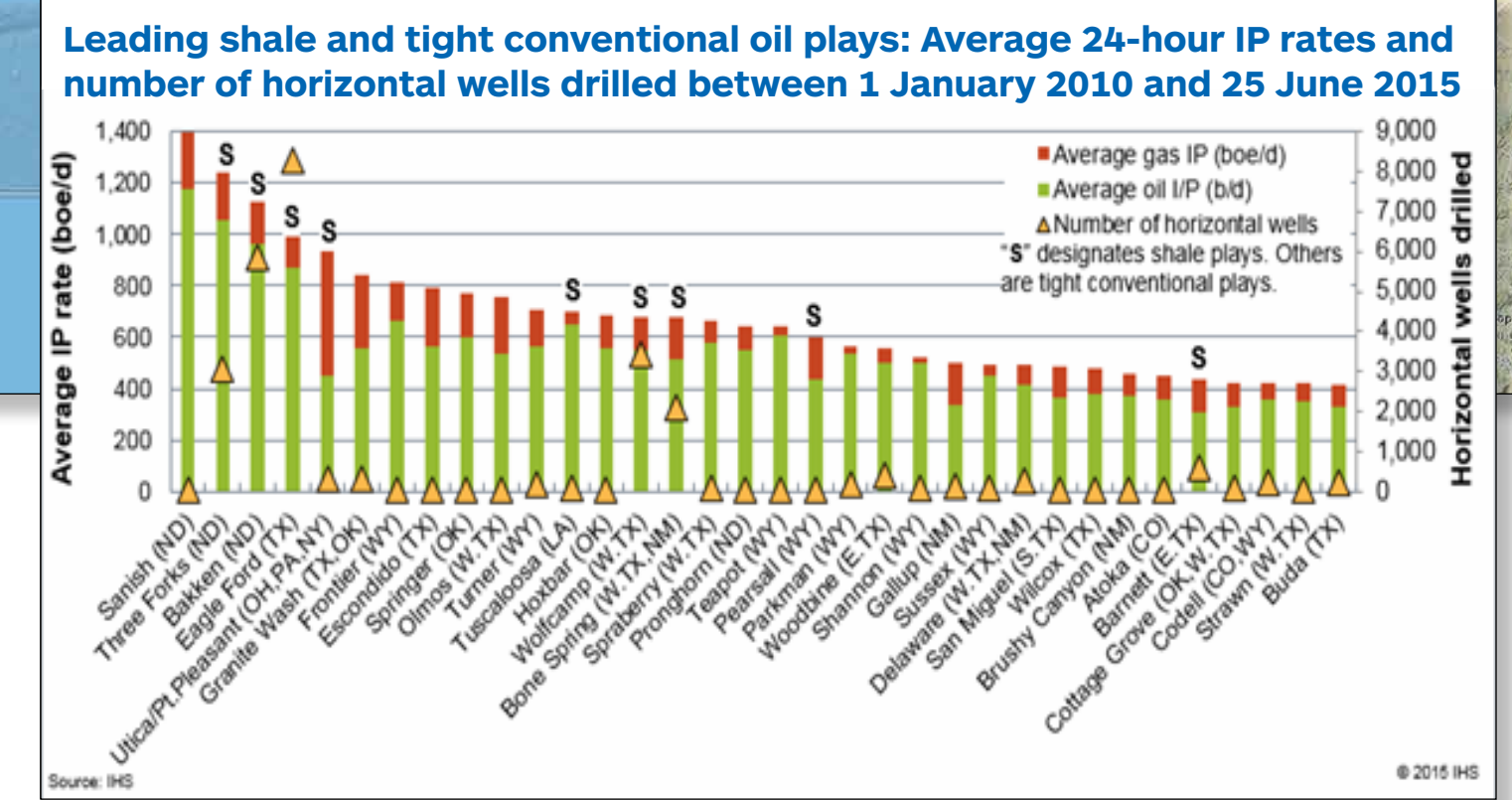
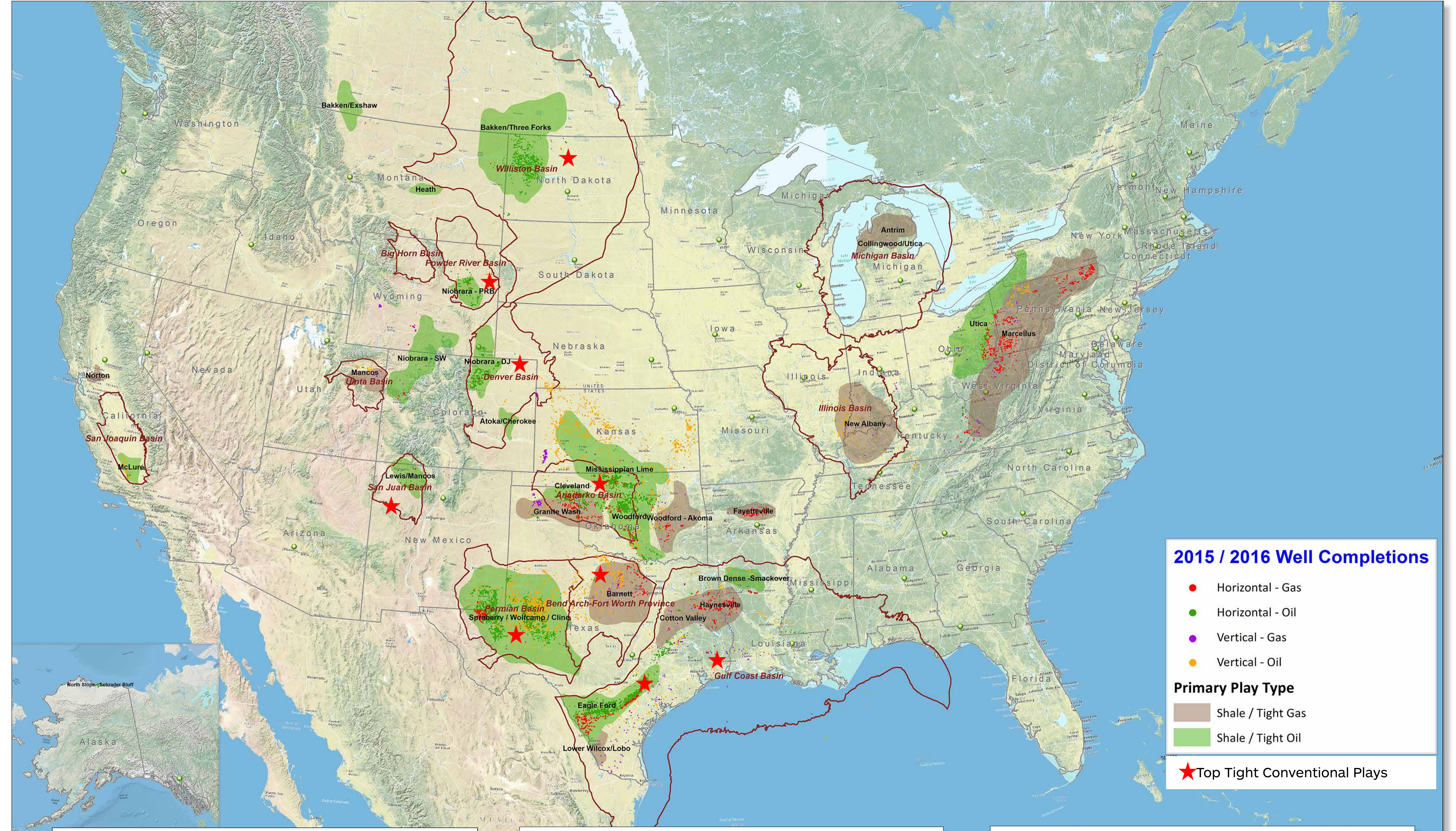
The graphic above shows the continuum of increasingly difficult to produce economic volumes of oil and gas from tight rocks (based on permeability). The IHS analysis focused on rocks within the red rectangle. Tight conventional reservoirs are those with permeabilities in the 0.01-2.0 md range that have tended to be sub-commercial in the conventional domain in the past, primarily drilled with vertical wells.

# The Hedging Shield Falls



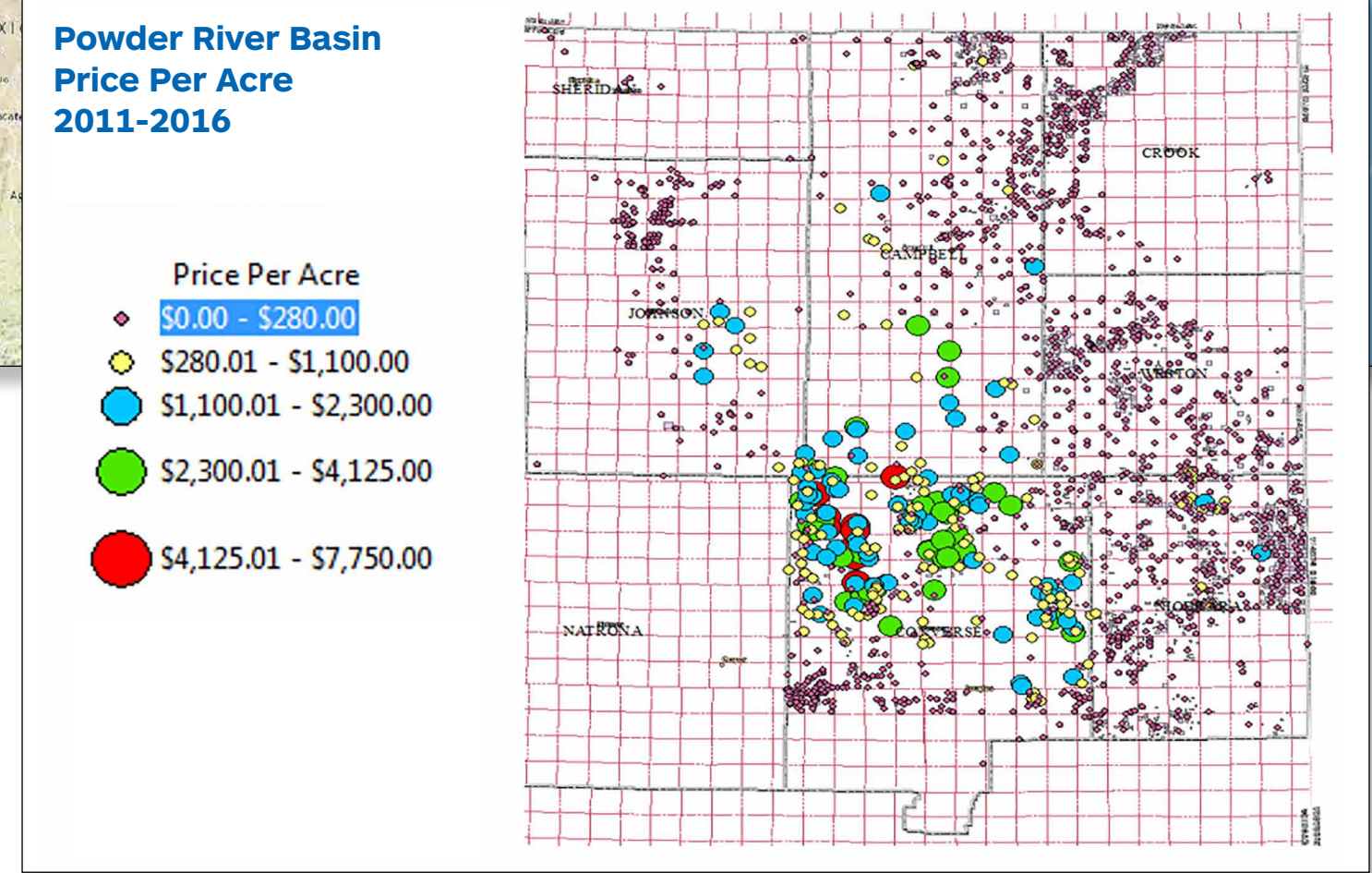
As crude oil and natural gas prices continued to crash throughout 2015, hedging shielded many companies in the IHS North American E&P peer group from the full brunt of the crash, generating \$16.7 billion in additional income for the group. However, as hedging rolls off in 2016 and 2017, revenues from hedging are set to tumble by 30% and 78%, respectively, leaving most of the group exposed to the realities of the low price environment. The market fundamentals of lower hedging will lead operators to lower cost plays like the tight conventional revival to realize lower breakevens and improved balance sheets. Source: IHS Company Valuation In Transaction Research

# Going back to the future for lower cost tight conventional plays



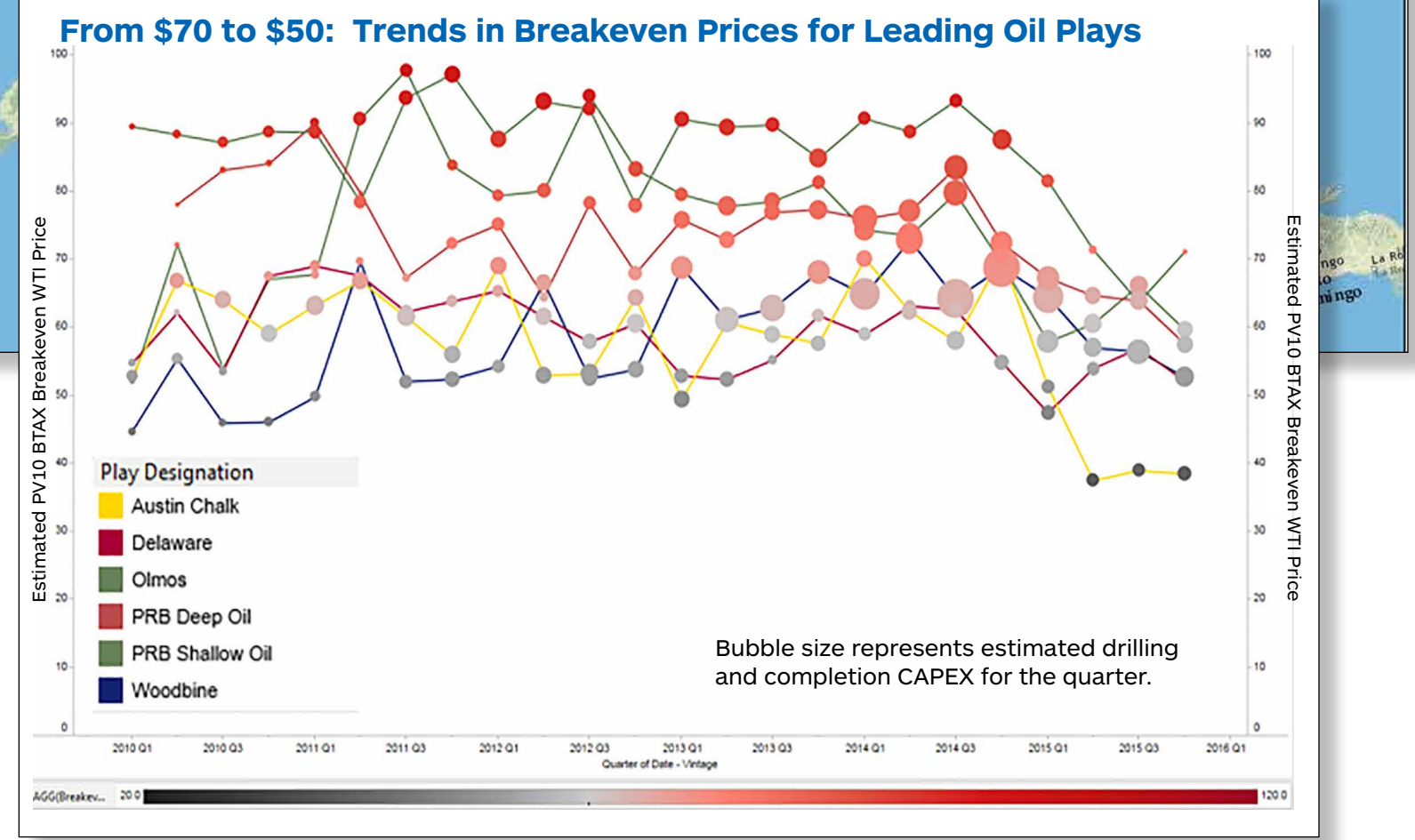
**Leading Tight Conventional Plays Compares Favorably with Top Shale Plays**

Applying unconventional technology to these underperforming tight conventional reservoirs provides a key relief for those companies not in the tightly held sweet spots in unconventional plays. It offers a tremendous upside potential as the industry moves back to the future as price recovery slowly happens over the next year. IHS Energy identified 266 conventional plays that were tested with horizontal wells in the last five years. Average initial potential test rates for the leading tight conventional plays compare favorably with those for established shale oil plays. Among the top 15 tight conventional plays, 9 are in the Rockies, 4 are in Texas and 2 are in the Mid-Continent. The study also identified 23 onshore potential "sleeper" plays with few horizontal wells and average initial potential test rates greater than 200 b/d. Source: IHS Energy "Horizontal Drilling Activity in Tight Conventional Plays" Multi-Client Study



**Powder River Conventional Redevelopment**

The growing importance of the application of horizontal wells and hydraulic fracturing to boost recoveries from tight and under-performing conventional reservoirs is exemplified by a recently announced group development project in Wyoming's Powder River Basin. The proposed 5,000 well development project involving seven or eight Cretaceous producing reservoirs in Converse County, Wyoming is evidence that emerging tight conventional reservoir developments might rival some of the shale/resource plays. IHS Land Studio provides lease acreage prices paid and lease holdings for the top operators in the Powder River development for investment planning and decisions plus potential partnership opportunities. Source: IHS Land Studio.



**Tracking Tight Conventional Economics**

A new economics module in IHS Performance Evaluator shows the changes in breakeven prices (NPV 10) over time for several top tight conventional plays. Note the steady drop in breakeven prices for all plays except the Powder River Shallow Oil play. Reserves, costs and breakevens are displayed with production volumes and wellbore information to allow comparisons between all plays and operators within plays. Source: IHS Performance Evaluator.