gaffney-cline.com

Experts in North American Shale

Gaffney,
Cline &
Associates

What makes Gaffney, Cline & Associates Different in Unconventional Shale?

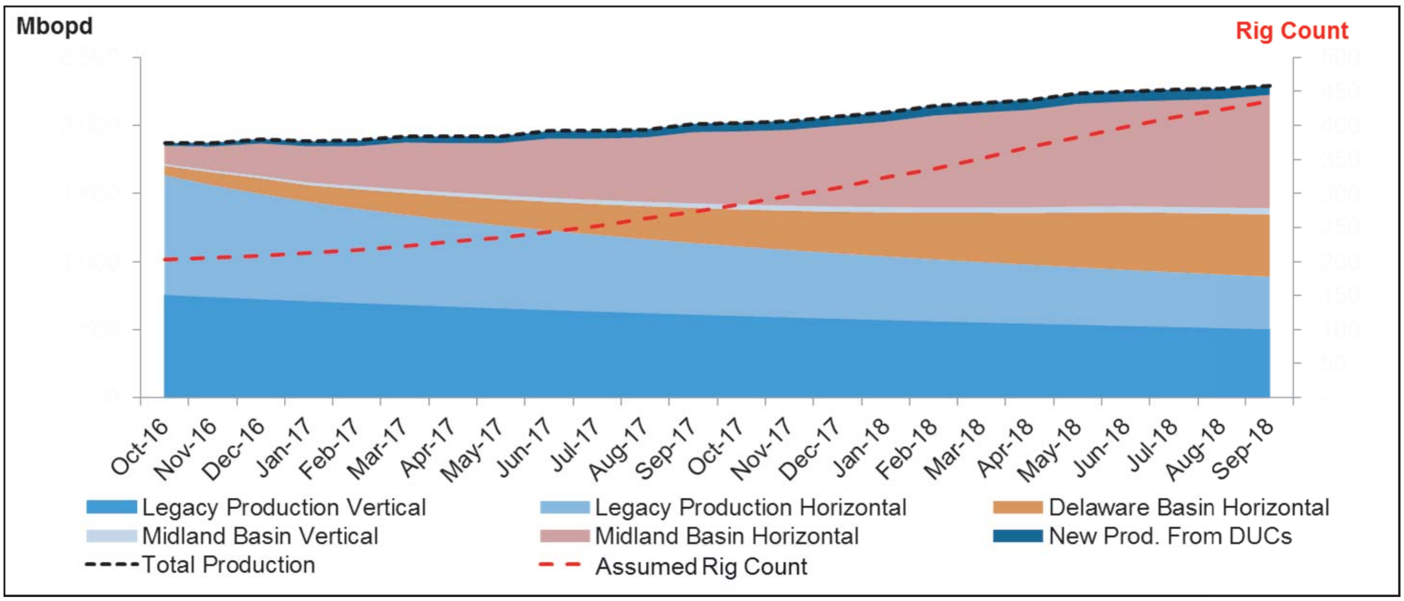
Gaffney, Cline & Associates (GCA) provides broad-based and detailed technical and commercial advice to our clients with shale basin assets across the upstream, midstream and downstream sectors of the oil and gas industry using a multi-disciplined approach. It is our integrated nature that differentiates GCA from our competitors. GCA's experienced staff provides all the capabilities found in an integrated oil company, and our methods are specifically designed to meet our client's technical, strategic, and commercial objectives.

North American Unconventional Shale Resource

GCA has undertaken a wide range of projects in the North American unconventional basins. Our experience within the major unconventional basins is both broad and deep, but also covers the mature and emerging sectors in the US and Canada. Our North American teams' experience & expertise has been leveraged by our clients to evaluate the Vaca Muerta shale play in Argentina as well as other shale plays globally.

GCA has developed our own proprietary Unconventional Basin/Play Project Economic model. This model has been used effectively to develop key insights related to potential production scenarios for both oil and gas from the US shale basins. These insights, coupled with GCA's expert analysis, enable our clients such as equity investors, midstream utilities and E&P companies to make informed decisions on project acquisitions, developments and investments with a reservoir to market perspective.

Illustrative Permian Basin Production Forecast using GCA's Proprietary Model



Illustrative Project Case Studies across the Full Stream of North America Unconventional Study

1. IOC Entering Montney Shale Play

An international operator looked to enter the North America unconventional market through a GTL plant in the Montney shale play of British Columbia.

GCA was engaged to assess the reserves and resources of the opportunity and, more importantly, advise on their potential to supply a GTL plant for a 25 year time line.

GCA's own geoscientists, reservoir engineers, drilling, completions, facilities and GTL experts assessed the technical merits of the play from subsurface, surface and infrastructure perspective and provided detailed geomechanical and reservoir simulation models. These are better suited to predict long-term shale production performance than the usual type-curve approaches.

Confident in the rigour of GCA's advice, the client invested in a strategic development partnership valued at over $1 Billion.

2. Multi-billion Dollar Midstream Acquisition

A client considering midstream and downstream investments in the Eagle Ford, Denver-Julesburg, Williston and Permian basins turned to GCA for advice on which unconventional play would be most resilient to hydrocarbon price fluctuations.

GCA identified key operators, most productive areas within each play, historical production data (to create type curves), forecasted full-field production and determined break even economics.

GCA forecasted future midstream infrastructure demand under several development scenarios within each shale play and confirmed the supply of feedstock required for investment decisions.

The client went on to capture opportunities worth $3Bn and $1Bn respectively.

3. Strategic Analysis of Break-evens in Bakken, Eagle Ford and Permian

A Middle Eastern NOC needed to understand short-term US output to guide its own production decisions so it engaged GCA to evaluate production for these three plays. GCA modelled costs, rig counts, production and break-even economics and also presented a short-term view on conventional oil production from Alaska, the Gulf of Mexico and the Lower 48.

4. Buy-side Due Diligence

GCA's client wanted value a JV offering for approval by its Board and engaged GCA to do independent technical due diligence. While their bid was unsuccessful (winning bid was $1.7Bn + drilling carry) GCA's analysis helped the client make a successful subsequent investment in a Permian basin JV. GCA's approach had been to review historical performance, planned productivity, and subsurface properties of 5 intervals then identify sweet spots, performance and cash flow models.

5. Haynesville Feedstock Peer Review

An utility company purchasing equity in gas feedstock for its LNG facilities asked GCA to review Shell's technical work on its 100,000+ acres in order to value the asset. GCA modelled 418 PDP wells, created type curves and modelled liquid loading and other production issues, development plans and costs. GCA went on to model low, best and high type wells which allowed the client to plan and redefine cash flow for the asset.

6. Overriding Royalty Interest (ORRI)

A GCA client was considering buying an ORRI in the oil window of the Eagle Ford Shale. GCA benchmarked well and operations costs and asset production against peers to determine KPIs. The FDP was evaluated. The Operator was found to be performing far below competitors due to poorer reservoir characteristics, rendering the FDP uneconomic. GCA advised a search for a different opportunity instead. Subsequently, the Operator in question experienced significant revenue losses, was bought out and delisted from the NYSE.

7. Utica/Marcellus Country Entry

An NOC looking for its first international venture sought a non-operated, onshore, midstream opportunity in the Utica/Marcellus shale play and requested GCA's assistance. GCA determined the resource potential around the midstream asset, risks, expected production activity and worked with other consultants to provide the client with a comprehensive study.

8. $1.5 B Investment in Duvernay Shale

An NOC and IOC looking at a 325,00 acre JV opportunity in west-central Alberta needed a third party peer review and process audit on the resources and commercial potential of this emerging play.

GCA's technical and commercial team reviewed production and subsurface data and identified existing capacity constraints along with several 'red flags' on methodology. Based on their improved understanding, the client made a successful bid valued at $1/5 B.

9. Major E&P Company Seeking Investment Targets

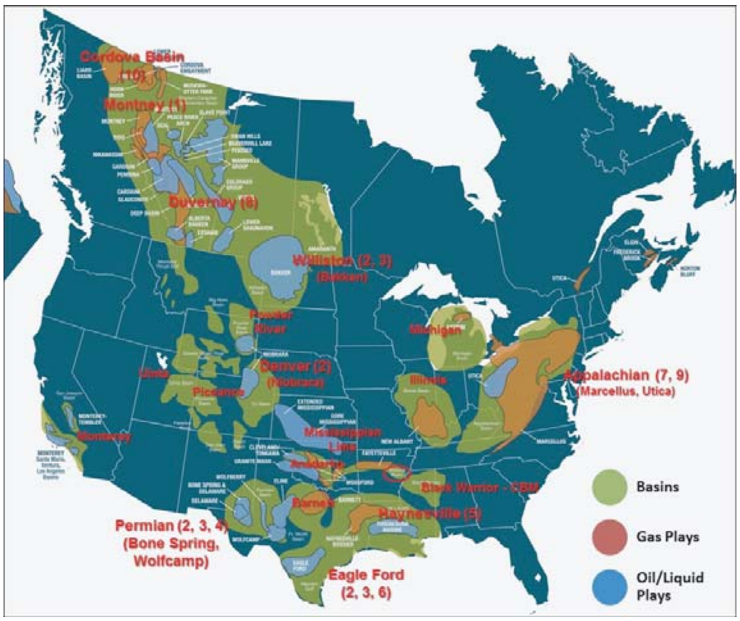
GCA advised the new US formed upstream arm of an E&P company on JV offerings in the Marcellus and Uttica Shales, providing commercial due diligence on a series of JV offerings with major US operators. GCA used its proprietary models and deep experience of these basins to develop future cash flows for each asset, evaluate and compare each operator's performance. In the process GCA helped a client unfamiliar with the US unconventional sector develop a comprehensive process and methodology for evaluating unconventional assets.

10. British Columbia Gas Opportunities

For a private E&P company looking at various assets being offered for a JV by Nexen, GCA provided a technical and commercial assessment. This included subsurface volumes, resources, production and cost profiles and cash flows. GCA's advice was that due to the large resource potential but changing market conditions, the bid should target a more strategic asset.

GCA also advised this client on Canadian regulations pertaining to HSE, drilling and fracturing and CO_2. The project also included guidance on the Canadian fiscal regime.

Illustrative Unconventional Commercialization Case Studies in North America



For weekly industry updates including US shale resources read GCA's Oil & Gas Monitor.
gaffney-cline-focus.com/category/u.s.-oil-gas-monitor

Additional Information

For more information about GCA's integrated services, please contact your local GCA office.

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