



Experts in American Energy

**Gaffney,
Cline &
Associates**

Gaffney, Cline & Associates in North America

Gaffney, Cline & Associates (GCA), a global consultancy, has delivered technical, commercial and strategic advice to the North American oil and gas sector for over 50 years. GCA's advice is grounded in impartial technical work, supported by astute commercial experience and leverages the senior teams expertise across the entire spectrum (upstream, midstream and downstream) of oil and gas industry activity.

GCA's North America business is run from the company's Houston office and is complemented by GCA's international offices in London, Singapore, Buenos Aires and Sydney. Core areas of GCA's project experience in North America include:

- Reserves & Resource estimations for SEC, NI-51-101 and SPE-PRMS reporting
- Competent Persons Reports (CPR's) for stock market listings
- Reserve Based Lending due diligence
- In-depth subsurface evaluations including:
 - Attribute driven seismic interpretation
 - Geology, petrophysics, static and dynamic reservoir modelling
 - Production forecasting from simulation
 - Type curve analysis
- Field Development Planning & Engineering
- Gas Monetization for pipeline & LNG projects
- Corporate and Project Finance advisory services related to asset valuation, investment decisions and divestment value realization
- Petroleum Policy Advice for corporate entities and at the state, country and international agency levels
- Dispute resolution and Expert witness advice

GCA works both for North America based companies and also because of its global presence, International companies looking to develop their positions in North America. So, whether you are a domestic gas producer looking for international monetization options, an American Operator seeking funding, or an overseas investor looking to understand and enter the North American continent and invest in its shale plays, GCA has the relevant experience and teams to assist in every step of the investment decision.

Impartial, confidential, technical, commercial and strategic advice... delivered in a focused manner

Thought Leadership in the North America Hydrocarbon Sector

Keep up to date with analysis of the Baker Hughes, a GE Company's rig count, oil and gas prices and international influences on the North American oil business by reading US Oil & Gas Monitor each week.

GCA's weekly US Oil & Gas Monitor blog: www.gaffney-cline-focus.com/category/u.s.-oil-gas-monitor provides our clients with timely insights on industry developments and direct access to our most senior staff.

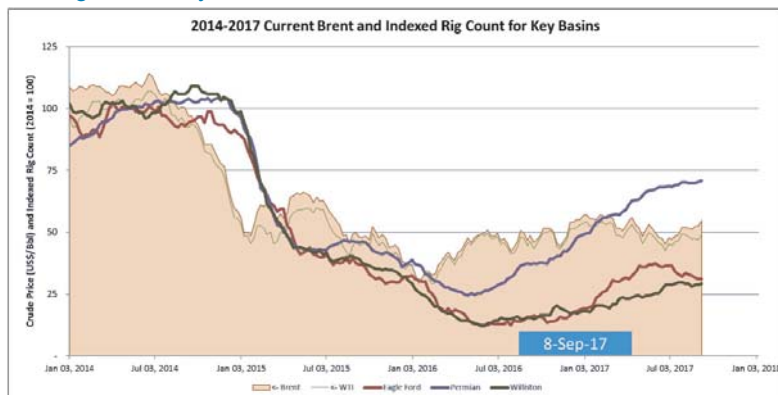
Since Q4 2014 GCA has monitored drilling activity & rig counts across the U.S., publishing weekly updates via the GCA US Oil & Gas Monitor.

The Monitor's focus is on the following major basins/formations:

- Permian/Wolfcamp
- Gulf Coast/Eagle Ford
- Williston/Bakken

Each Monitor issue also includes topical insights on LNG exports and the impacts North American gas has on worldwide pricing.

Rig Count by Basin - from GCA's US Oil & Gas Monitor



Unconventional Resources - Rigorous Evaluation & Value Creation

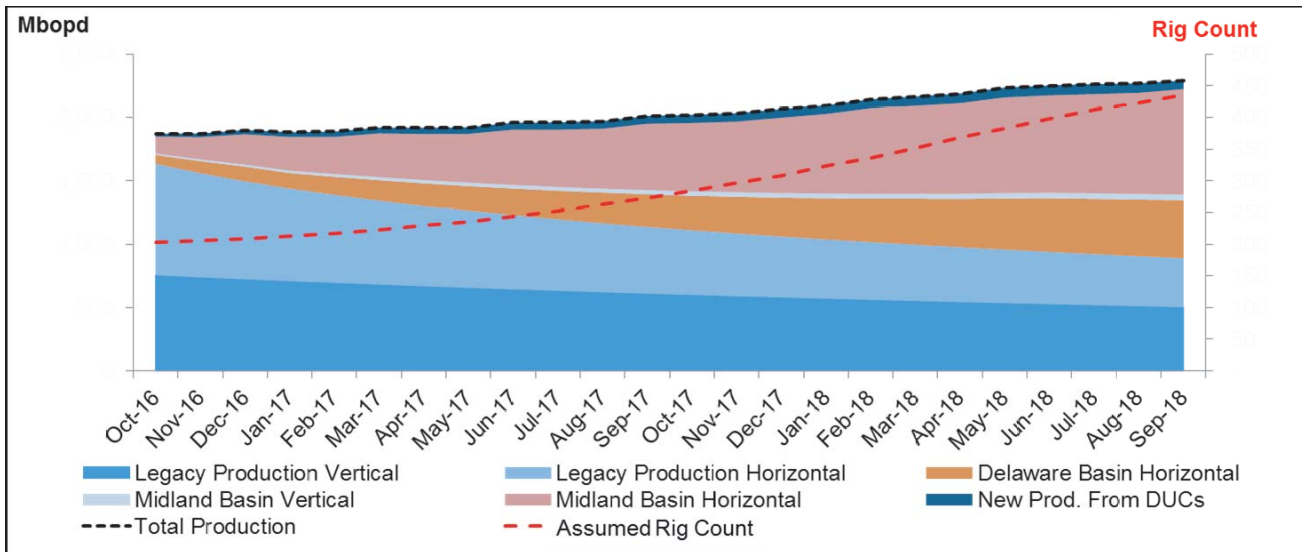
GCA has had continuous technical and commercial activity across the unconventional sector for many years. Typical projects include work for royalty owners, private equity, strategic secondary's, in-bound investment into midstream, utility owners and the full spectrum of E&P companies.

GCA maintains its own in-house type curve database and has a continuously updated forecasting model for shale basin production from the major basins for both oil and gas.

In addition, GCA's in-house unconventional economic modelling model takes sub-surface, drilling, completion, facility and economic variables to generate production profiles, well schedules, and operator cash flows.

Project summaries can be found in our Experts in Shale brochure available on the GCA website: <http://gaffney-cline-focus.com/category/brochures>

Example of Output from a GCA Model for a Permian Basin Production Forecast based on an Assumed Rig Count Scenario

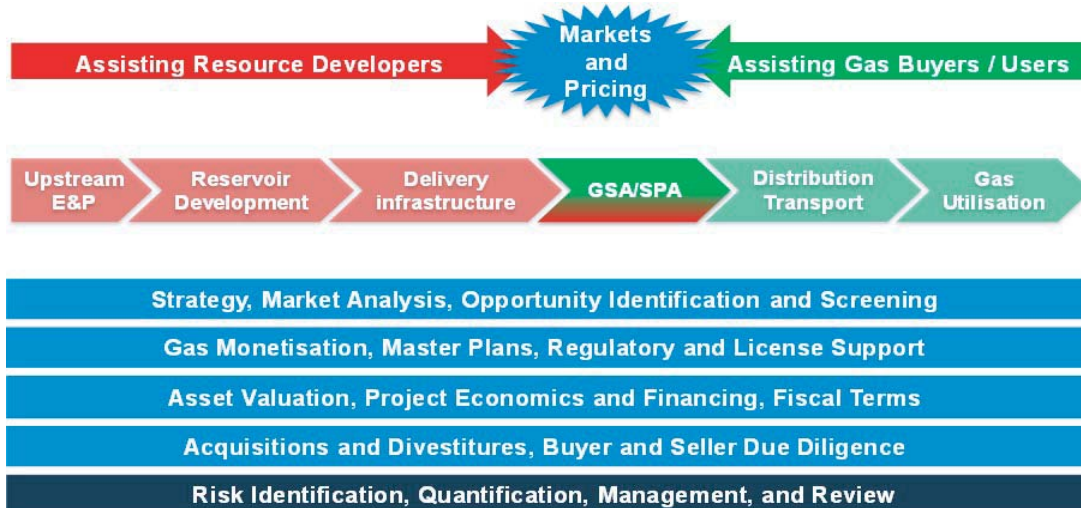


Global Gas & LNG - From North America to the World

GCA's Global Gas and LNG team is headquartered in Houston, ideally placed to gauge the impact North American gas production and exports are having both domestically and globally.

The Gas & LNG team assess the global price setting implications of US Gulf Coast exports and the near to medium term opportunities to monetize it. They also assess the scalable solutions emerging markets require. The team has also evaluated the commerciality of numerous West Coast LNG projects.

Global Gas & LNG: Pulling it all Together



Reserves & Resource Reporting



GCA has longstanding experience in SEC, NI-51-101 and SPE-PRMS Reserves and Resources reporting for the New York and international Stock Exchanges. GCA's US-based staff include a past-chairman of the SPE Oil and Gas Reserves Committee, and several Heads of Reserves at international oil companies. Together with our reserve based lending services, these activities are a core part of GCA's North America business.

GCA North America has it covered



★ GCA's North America Regional Office, Houston TX

Additional Information

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

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