

Gaffney
Cline

Experts in Norway



GaffneyCline

GaffneyCline is a global consultancy that has been offering technical, commercial, and strategic advice to the oil and gas sector for more than 50 years. GaffneyCline is well known as one of the leading suppliers of Reserves and Resources assessments, which are required for many purposes including statutory reporting, stock exchange listing, development planning, project finance, and asset valuation. In addition, GaffneyCline offers a full range of upstream, midstream and downstream consultancy services. These include seismic interpretation, static and dynamic reservoir modelling, field development planning, facilities and pipeline engineering, gas monetization, LNG/GTL, mergers and acquisitions, economics and project finance, unitization and redetermination, and expert witness work. GaffneyCline operates worldwide from three main offices in London, Houston and Singapore, supported by regional offices in Buenos Aires, Sydney and Dubai.

Norway

Oil and gas success on the Norwegian continental shelf has been the driving force behind Norway's economy for over 40 years. GaffneyCline is proud of providing technical and strategic advisory services to Operators, Non-Operators and Investors in the Norwegian hydrocarbon sector since the 1970s. In addition, GaffneyCline has played key roles in supporting the Norwegian government's oil policy, such as when it was engaged by the NPD and Ministry of Petroleum and Energy to provide assistance with the restructuring and partial sale of interests held by the State Direct Financial Interest (SDFI), the largest licence holder in the Norwegian Continental Shelf, with interest in nearly every licence in Norway. This involved preparing a database and commercial evaluation of all producing, undeveloped and exploration assets and an evaluation of certain pipelines and onshore facilities. GaffneyCline was also instrumental in the set-up and establishment of the current Norwegian state oil company, Petoro, which now manages the SDFI.

As well as these projects on behalf of the state, GaffneyCline has been the technical adviser to private companies seeking new-country entry strategy advisory services into Norway. GaffneyCline's unique insight into the Norwegian Oil and Gas sector has also led to GaffneyCline being commissioned to represent clients in three significant Unitisation and Redetermination projects in Norway.

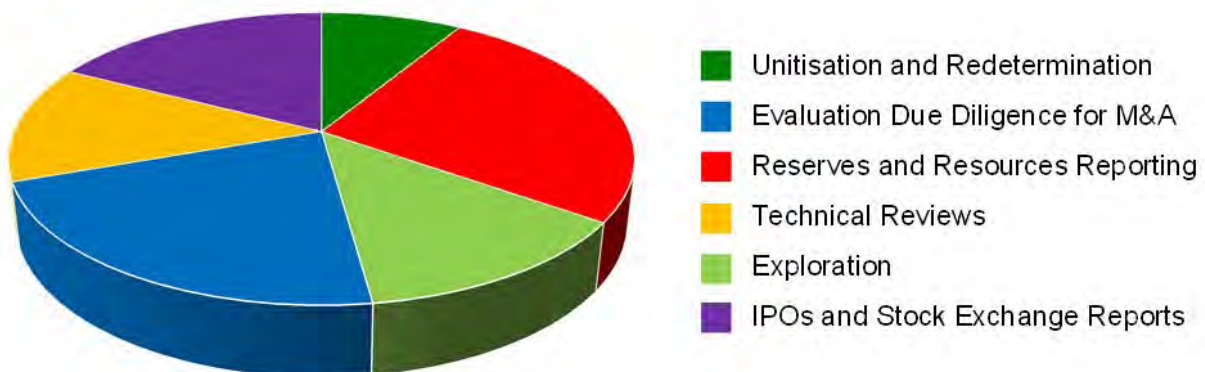
Every year GaffneyCline carries out private and public Reserves and Resource estimations as well as audits for companies with fields in Norway. Estimations support clients' transactional and portfolio activities including; buy-side due diligence; divestment decisions and portfolio optimization. GaffneyCline's audits include rigorously verifying executable activities, feasible developments and attainable operational schedules.

GaffneyCline is also regularly involved in the assessment of exploration potential across the Norwegian basins as new areas have been licensed. This work has required opinions on Play Analysis, Lead and Prospect mapping, Subsurface Risk and the commensurate Prospective and Contingent Resource estimates often including notional FDPs and expected costs.

GaffneyCline has fully integrated E&P capability to support the value chain from play and basin analysis to production forecasts, with conceptual field and facilities engineering and commercial evaluation, including cost profiles and oil price.

In the last five years GaffneyCline has undertaken more than 30 projects in the Norwegian offshore in the proportions shown below. Approximately 50 different licence blocks have been evaluated, including over twenty producing fields. Selected examples of some of these most recent Norwegian commissions are outlined below:

Proportions of Recent GaffneyCline Norway Projects by Type



Norwegian Sea Exploration Acquisition: GaffneyCline was engaged by a major European utility to review the proposed acquisition of part-equity in an exploration asset in Norway by their exploration and production affiliate. GaffneyCline was required to rapidly assess the proposed equity transaction including the cash calls required for an imminent exploration programme. The work required GaffneyCline to review the proposed range of Prospective Resources, calculate the Geological Chance of Success (GCoS) and to rationalise the costs and profiles in order to assess the success case NPVs which underpinned the proposed equity value.

Independent Expert for Evaluation: During a dispute resolution process, in which two sides of a transaction disagreed about the value to be placed on a transaction, GaffneyCline was selected to be the Independent Expert. The disputed company had exploration interest in eight Norwegian licences. As Independent Expert in the evaluation process, GaffneyCline followed strict guidelines involving Prospective Resources, Geological Chance of Success, Conceptual Developments and Expected Monetary Value to provide an independent evaluation for the acquisition.

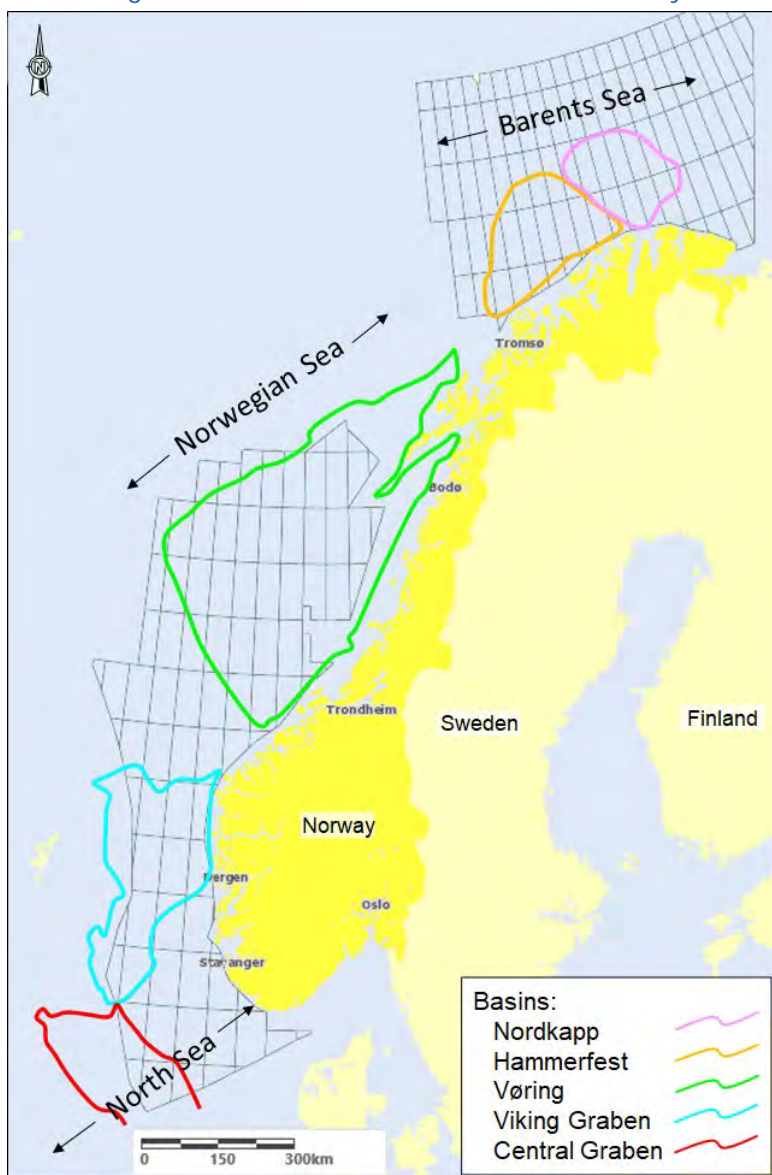
Due Diligence for Asset Acquisition: GaffneyCline conducted due diligence on assets in Norway for a potential acquisition. GaffneyCline reviewed the sub-surface information and proposed a range of future production and costs profiles for the four main oil and gas condensate fields, two of which were already in production and two planned to be developed as tie-backs to the existing platform/FPSO. GaffneyCline also conducted a risk assessment for the four fields. GaffneyCline's analysis was made on the basis of data made available by the Seller through a virtual data room, including static and dynamic reservoir models. GaffneyCline completed its review in a short time frame to meet the client's deadlines.

Unitisation and Redetermination Support: Over several years GaffneyCline has been providing support to one of the successful parties in a significant asset unitisation process in Norwegian waters. GaffneyCline provided techno-commercial advice to optimise the company's negotiating position and undertook a state-of-the-art evaluation of key petrophysical parameters used in calculating oil-in-place. Oil-in-place is the technical basis of most tract participations so this work was fundamental to the client's final submission.

Resources and Economic Evaluation: For a private Norwegian operator, GaffneyCline performed an independent estimation of the Contingent Resources attributable to two oil discoveries in the Norwegian sector of the North Sea, and also performed an economic evaluation thereof. The client used GaffneyCline's report to satisfy reporting requirements of the Oslo Stock Exchange and also in support of a Rights Issue. The assessment was made on the basis of data from three wells (the two discovery wells and one appraisal well), good quality 3D seismic data, outline development plans and commercial information.

Preparation for Redetermination, North Sea: For a major IOC holding non-operating equity in a large North Sea oil field, GaffneyCline undertook a year long independent analysis in preparation for a possible equity re-determination. The Unit Operating Agreement (UOA) procedures had not been re-written since the early 1980's and many of the specified procedures used were obsolete in the context of industry best practices.

Significant Petroleum Basins Offshore Norway



Source: Base Map from NPD

Consequently, GaffneyCline developed methods and routines which, whilst they complied with the UOA requirements, incorporated up-to-date concepts and ideas to support the client's position. The client was happy with GaffneyCline's support and the ultimate outcome of the process.

CPR for Bond Issue: GaffneyCline prepared a Competent Person's Report (CPR) for a small independent oil company with assets in Norway and internationally in support of a corporate bond issue on a Stock Exchange. GaffneyCline evaluated reserves and resources in each of the company's assets. The company's assets included oil and gas discoveries in Norway, and numerous exploration Prospects in over a dozen licences. GaffneyCline reviewed technical information and development plans provided by the operators of the various assets, plus the company's own views on its key assets, and performed its own analysis to arrive at its Independent Reserve and Resource estimates. GaffneyCline's work included geoscience and engineering analyses, cost estimation and economic analysis. GaffneyCline has also produced numerous annual Reserves and Resources reports for this client.

Annual Reporting: GaffneyCline produces annual gas and oil Contingent and Prospective Resources reports for several independent oil and energy companies with exploration and production licences across the Viking Graben, Vøring Basin, and Hammerfest Basin. These include HPHT fields. In some instances the reports are for share-holder updates and, in others are for internal use only.

Reserves Prior to Development Drilling: GaffneyCline conducted an in depth audit of an Operator's reserves estimates, post development approval but prior to commencement of development drilling. The field had a moderate permeability shallow marine reservoir in a well-defined faulted structure, located in the Norwegian Sea. It was being developed as a subsea tieback to existing infrastructure which would provide oil/gas processing and export, plus gas-lift gas and water injection. The impact of this third-party infrastructure was incorporated into the analysis.

GaffneyCline reviewed multiple 3D seismic data sets, velocity, static and dynamic models, supported by extensive specialist reports. In line with SPE-PRMS guidance on undeveloped fields, GaffneyCline reviewed offset field reservoir production performance as calibration of dynamic simulation results in the absence of production data on the new field.

Forecast water flood recovery efficiency was evaluated based on the degree of reservoir compartmentalization. GaffneyCline prepared sensitivity cases using the validated dynamic simulation model, calibrated by evidence from analogue fields with similar reservoirs and reservoir recovery mechanisms.

Additional Information

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

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Contingent Resources of a Discovery: GaffneyCline performed an independent estimation of the Contingent Resources attributable to a gas discovery in the Norwegian Sea, for a small independent Norwegian oil company. The assessment was made shortly after the discovery and involved a review of the client's interpretations, with some refinements based upon seismic and well data provided at project kick-off. GaffneyCline's report was used by the client to satisfy reporting requirements of the Oslo Stock Exchange and also in support of a successful Rights Issue.

Exploration Well Cash Call: For a large European Operator, GaffneyCline provided independent Board level advice for the drilling of an exploration well on a Prospect in the Norwegian North Sea. The Client provided GaffneyCline with a summary report and presentations on the prospect, and requested GaffneyCline to provide support and opinion for the well proposal that would be put to its Board. GaffneyCline reviewed the documents provided in order to determine:

- Whether there were any open issues which could not be clarified with the presented documents?
- Plausibility: Was the proposed exploration project feasible with the presented documentation? Were there any significant incomprehensibilities?
- A recommendation to pass (or not) the resolution proposal to the Supervisory Board.

Stock Exchange Updates: On behalf of one of the partners, and drawing on GaffneyCline's experience of other basement plays, GaffneyCline has audited the oil resources associated with a recent basement discovery in the Norwegian sector for a submission to a Stock Exchange.

'Peer Review' Due Diligence: GaffneyCline also provides 'peer-review' style audits of models and FDPs under various costs and price scenarios for Operators and partners looking for independent due-diligence in support of key investment decisions.

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