

Gaffney  
Cline

Experts in North Africa



## GaffneyCline

GaffneyCline is a global consultancy that has been offering technical, commercial, and strategic advice to the oil and gas sector for over 50 years. GaffneyCline's reputation demonstrates that the advice delivered, together with its industry insights, is of high-quality, impartial, technically based, and commercially astute. GaffneyCline is traditionally known for being one of the leading Oil & Gas Reserves Consultants within the industry providing Competent Person's Reports and Expert Witness representations; but in reality, GaffneyCline offers a full range of upstream, midstream and downstream technical and commercial consultancy services. These range from in-depth subsurface evaluations using seismic interpretation, the building of detailed static and dynamic reservoir models, through field development planning, field engineering, to gas monetisation, LNG/GTL, mergers and acquisitions, economics and project finance. GaffneyCline operates worldwide from three main offices located in London, Houston and Singapore, and supported by local offices located around the world.

## North Africa

Consistent with its reputation as an international consultancy of some renown, GaffneyCline has executed a large range of projects in the North Africa region that demonstrates its versatility, experience and skill base. Starting in the 1980s this North African experience has grown and includes work for Governments, National Oil Companies, multi-nationals and independents. The following examples provide a taste of the breadth of work, technical and commercial, that GaffneyCline has been engaged on in the region over the last 20+ years.

### Independent Asset Evaluation, Algeria:

At the request of a major oil company, GaffneyCline provided an independent assessment of the hydrocarbons in place and potential recoverable volumes within two license blocks. The report provided an independent opinion on the oil and gas volumes within the main hydrocarbon accumulations and key Prospects, the technical feasibility of the proposed/notional development schemes together with appropriate technical recovery factors and illustrative production profiles.

### Methanol Plant Development, Algeria:

On behalf of a Middle Eastern Petrochemical company, GaffneyCline performed a technical review of the commercial structure, capital costs, market standing and gas stock prices for a potential Methanol Plant development in Algeria.

### Competent Person's Report and Reserves Audit, Egypt:

GaffneyCline prepared a Competent Person's Report (CPR) for a government oil company in preparation for a Bond Issue. The assets within the portfolio included four onshore blocks in Egypt.



### Gas Reserves and LNG Facility, Egypt:

GaffneyCline evaluated and valued the Egyptian assets for a possible acquisition of Edison's 50% interest in the West Delta Deep Marine Concession, Nile Delta on behalf of a public company. This concession contains several gas discoveries which supply gas to the domestic market as well as a major onshore LNG liquefaction facility. GaffneyCline's work included an independent estimation of the gas Reserves, an assessment of the exploration Prospects and Leads and a valuation of these assets. As part of this project, GaffneyCline also reviewed the LNG facility and the commercial arrangements related to this plant.

### Western Desert Development Plans, Egypt:

GaffneyCline prepared geological and engineering models for a range of onshore oil and gas assets for an independent operator. The deliverables included static models, production forecasts and field facility plans, which provided the basis of a major asset sale.

### Gulf of Suez Pre-Salt Fields, Egypt:

GaffneyCline provides on-going subsurface mapping and Reserve estimation support for an independent oil company that operates a variety of pre-salt oil and gas fields, offshore Gulf of Suez. GaffneyCline provides an annual review of reservoir models, production performance, facilities upgrades and scope for incremental drilling targets covering a wide range of different reservoir objectives.

### Technical Due Diligence for Corporate Acquisition, Egypt:

In January 2007, Dana Gas completed its acquisition of the TSX-listed Centurion for \$1.015 billion. This was the first acquisition for Dana Gas and provided a major entry to exploration and production assets in Egypt. The primary asset was the producing El Wastani gas field, onshore Nile Delta, Egypt. In connection with this transaction, GaffneyCline provided technical due diligence, which included an appraisal of the producing assets and an in-depth evaluation of the exploration potential of the areas adjacent to the producing fields. GaffneyCline continues with post acquisition support to Dana Gas through the provision of an annual independent assessment of the oil and gas Reserves in Egypt and a review of the exploration activity and programme.



### Sale of Assets/Technical Advice, Egypt:

GaffneyCline was engaged by a major Merchant Bank to provide assistance during the sale of a package of state-owned oil and gas fields. The work performed required a site visit to the field complex followed by data collection in both Cairo and Alexandria. This resulted in the preparation of an Information Memorandum that supported the successful sale of the assets at a later auction.

### Gas Storage Pre-Feasibility Study, Egypt:

GaffneyCline was requested to review potential options for extending the life of a gas storage facility. The study included a countrywide and regional review of gas utilisation in Egypt and a determination of the commercial merits of the proposed project. This required an in-depth evaluation of future gas supply/demand and pricing issues, in conjunction with considering gas export opportunities in order to assess the potential need for future gas storage.

### Equity redetermination project, Libya:

GaffneyCline was commissioned by an independent oil company to produce a Unit Operating Agreement that addressed the operations and equity redetermination of a field in Libya that was wholly operated by the client and spanned two adjacent contract areas.

### Exploration Prospects & Strategy, Morocco:

GaffneyCline was commissioned by an International Agency to undertake an evaluation of petroleum exploration Prospects and to make recommendations for an exploration strategy for future drilling in the area. GaffneyCline undertook a review of the seismic and existing drilling results on the permit area from which a proposed exploration drilling programme was identified to evaluate the further hydrocarbon potential of the area.

### Review of Potential Equity Investment, Tunisia:

GaffneyCline was retained by a large European private equity firm to undertake an independent review to support a potential equity investment in the development of a carbonate oil reservoir,

offshore Tunisia, operated by an independent Tunisian oil company.

### Preliminary Review and Valuation of offshore fields/discoveries, Tunisia:

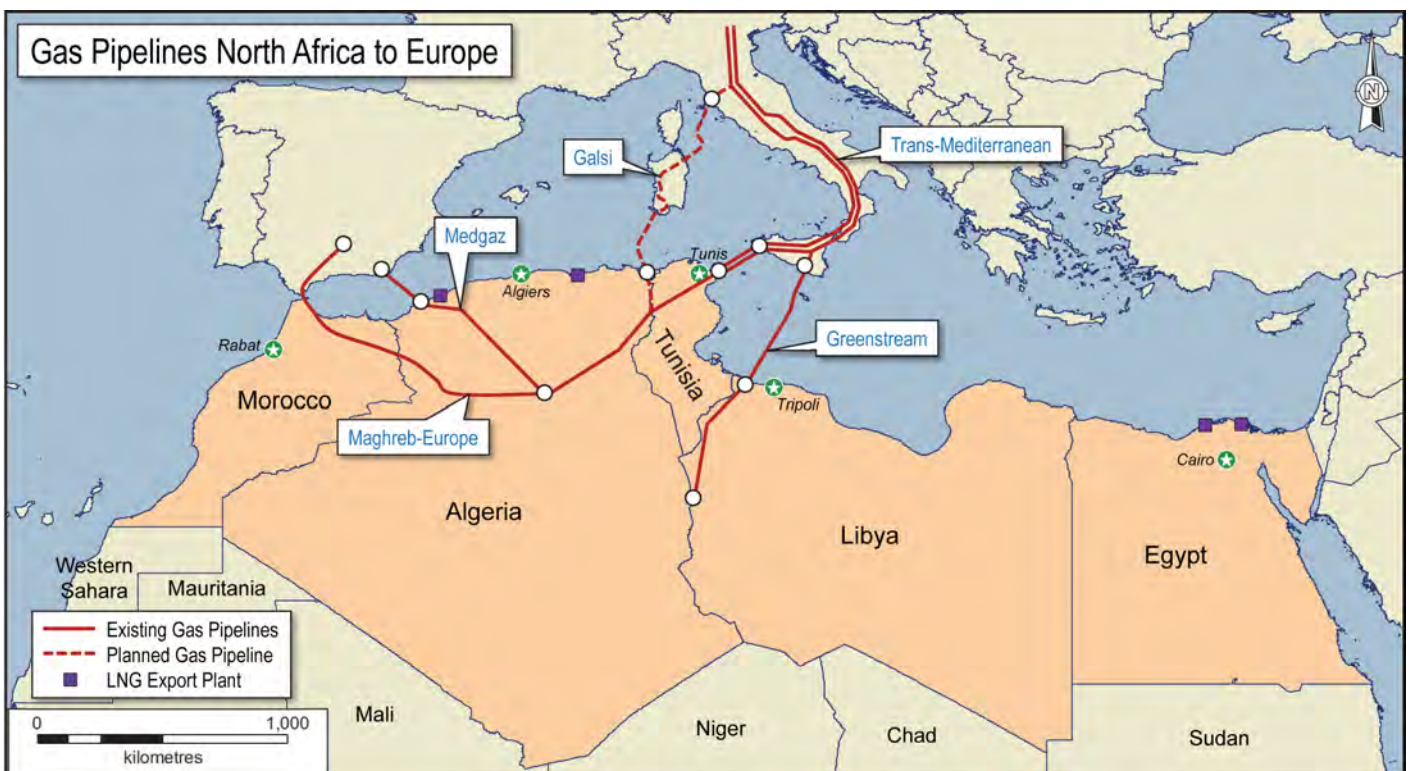
On behalf of an independent oil company, GaffneyCline carried out a technical and economic review and valuation of a producing oilfield, three discoveries, and two exploration prospects offshore Tunisia. The study included a geoscience review and dynamic reservoir simulation modelling with multiple history matchings and forecasting, that quantified the range of uncertainty in the production forecasts for the two well development.

### Review of E&P Legislation and Economics, Tunisia:

At the request of a major independent oil company, GaffneyCline prepared a Technical Memorandum on petroleum exploration and development in Tunisia. The memorandum provided a short review of operational conditions in Tunisia, outlined the main features of Tunisian legislation and petroleum contracts, and included unrisksed scoping economics for three different field sizes.

### Field Development and Exploration Potential - Libya:

GaffneyCline was commissioned by an independent oil company to provide technical assistance during the development of an onshore oil field, and carry out an evaluation of associated exploration potential in Libya. GaffneyCline performed a detailed audit of the client's development plans and provided further technical input (reservoir engineering, geoscience and operations) to support the development activity. In addition, detailed assessments were made of the client's exploration database to provide a regional seismic sequence evaluation, gross depositional environment interpretations and the definition of play concepts and play fairways, culminating in the identification of areas of prospectivity.



## Technical Review of Oil and Gas Fields, Libya:

On behalf of a publicly listed company, GaffneyCline undertook a technical review of a complex of oil and gas fields in North Africa that included an assessment of future production methodology and the related capital and operating expenditures. The work comprised a review of geological and geophysical data to provide an estimate of the resource volumes and the Resource potential. GaffneyCline provided a range of production and cost forecasts for a number of development scenarios.

## Evaluation of Reserves, Algeria:

GaffneyCline was commissioned by a Government department to provide an independent statement of Reserves for gas-condensate reservoirs for two fields, and estimated forecasts of future production and performance. These subsurface studies provided the basis for recommendations to enhance the production performance of the fields.

## Long-Range Programme Planning (Facilities), Egypt:

An independent oil company commissioned GaffneyCline to carry out an evaluation of the surface facilities at a major oilfield. This formed part of an overall review that the company was undertaking on the potential future performance of the field. The evaluation initially focussed on the existing facilities (size and capability), to identify any constraints and identify any short-term modifications that could be implemented to maximise current production. GaffneyCline

further evaluated additional and alternative longer-term development options to meet the client's forecast of future production. These studies considered existing surface facilities capacities and functionality and recommended additional surface equipment requirements and a modification of well completion types that could be applied.

## GaffneyCline Training Projects:

In addition to providing both Upstream and Downstream technical and economic evaluations and advice, GaffneyCline also provides a series of related Training Courses, including training in:

- Oil & Gas Reserves Assessment
- Field Development Planning

## GaffneyCline Projects:

Of the 109 projects undertaken by GaffneyCline in North Africa over the last 10 years, the split per country is as follows.

GaffneyCline North Africa Project Summary	
Country	Number of Projects
Algeria	11
Egypt	69
Libya	6
Morocco	6
Tunisia	17

## Additional Information

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

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