



**GLOBAL CONTRACT
RISK MANAGEMENT
for the Oil and Gas
Industry**

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**Contracting/Commercial Strategy
for the 21st Century
and the
Management of Risks on Major Projects
(or 'investing in loss'¹)**

Introduction:

The purpose of this paper is to analyse the problems that currently exist regarding the execution of major projects in the current international and economic climate and to propose a potential solution for the 21st Century and beyond.

¹ Cheng Man-ch'ing – Master Cheng's Thirteen Chapters

Project trends, their effect on contract design; location, emerging nations and local requirements:

Many projects worldwide are now much larger often including complex technical, logistical, and political challenges. The Contractor's risk is therefore frequently spread over a smaller number of very much larger projects. Many contracts now require a local content that is beyond reality to honestly achieve. A large number of these contracts are in areas where governments, commercial and tax laws can change at very short notice the latter often retrospectively. Operating, Design and Fatigue life requirements are of necessity extending as economics drive most large company Clients to invest in new large/long life developments and dispose of smaller and declining developments to others better organised to operate such resources.

The effect on Contract risk:

Contract risks are numerous and many faceted from both Clients and Contractors points of view.

These risks include a number of factors including some of the more predominant listed below:

- Much larger contracts with greater risk in each contract reducing the ability to balance such risk over a number of parallel and overlapping contracts
- Problematic geographic, geological, hydrographical and political locations (sometimes but not always and certainly not entirely,

offset by Government/Trade Guarantees - e.g. ECGD² and EX/IM³)

- Tighter insurance market (CAR⁴/BAR⁵/PI⁶ and even Employers Liability for certain elements of work)
- Greater transfer of risk to the Contractor (particularly where the contracting strategy includes either Turnkey and/or Functional Specification and/or EPC⁷/EPIC⁸ and/or Contractor/Client provided Independent Verification)
- Longer design/operating/fatigue life requirements
- Functional specifications
- Design for decommissioning and total removal

The current climate has resulted in traditional Contractors refusing to bid Turnkey, lump sum EPC/EPIC work and attempting and often succeeding in negotiating very low (inappropriate to the relationship of the parties and the Contractor's advertised advantages/ability and standing) caps on liability in any contracts they do enter into.

² ECGD means Export Credits Guarantee Department, it is the UK's official Export Credit Agency

³ EX/IM means The Export-Import Bank of the United States (Ex-Im Bank) it is the official export credit agency of the United States. Ex-Im Bank's mission is to assist in financing the export of U.S. goods and services to international markets.

⁴ CAR means (in this context) 'Contract All Risks'

⁵ BAR means 'Builder's All Risk' (sometimes CAR 'Contractor's All Risks')

⁶ PI means Professional Indemnity

⁷ EPC means Engineer, Procure and Construct often used in the Petro-Chem and Process Industries

⁸ EPIC means Engineer, Procure, Construct and Install often used in the Petro-Chem and Process Industries

The principles of alliances and partnering were tested with limited success. The major problem with these ‘solutions’ was and still is that, unlike some other industries, there is no real financial inducement to the Contractor beyond the construction and commissioning phase. In the automotive industry for instance the sub-contractors will execute expensive R & D and enter into ‘just in time’ supply deals as the lion’s share of their turnover and profit comes from the after market sales of spares.

As a result, the lack of interest in true partnering and allienceing for the Contractors operating in the Oil, Gas, Process, Energy and Utilities sectors stems, partially, from the fact that with most Projects and with most Clients there is little involvement post completion or commissioning. The result is a situation where OPEX⁹ suffers for lower CAPEX¹⁰ driven by a competitive market restricted generally to the CAPEX element of the market.

Incentivised contracts worked reasonably well but the real problem of long tail risk apportionment and its management was hardly considered or addressed other than by crude and totally inappropriate caps on liability in both Lump Sum and Target based contracts to safeguard (to some degree) the Contractor.

⁹ OPEX means Operating Expenditure (life cycle costing, total cost of ownership, value engineering)

¹⁰ CAPEX means the Capital expenditure on the Project (a large part of which is generally the Construction Contract especially if land, licence and exploration costs over which the Contractor generally has little or no influence)

To redress the situation Contractors now frequently offer to carry out engineering and management of procurement and construction (EPCm) contracts on a reimbursable basis. How they convince Clients that they can manage these risks efficiently for them when they have previously been unable to manage those same risks for themselves remains a mystery. These Contractors are currently refusing to price on a lump sum basis and appear reluctant to enter into Target based contracts with effectively the same liabilities (apart from cost up to 'Completion'/the end of the Defects Liability/Completion Period).

Effectively the Clients' only other choice is to directly hire contract personnel and smaller Contractors (essentially the main Contractors previous sub-contractors). Or is it? This course of action is not in fact really practicable as the Client organisations do not generally have the in-house ability (certainly not in the numbers and specialities required) to manage and control a large and complex Project especially when those resources that they do have are stretched managing their existing facilities and assets. This is further exacerbated by the current dire shortage of suitably qualified and experienced personnel¹¹.

¹¹ See the recent (2007) 'Market Alert' Title 'Engineering and project Management Shortage Likely to Severely Affect Development Costs and Viability' Special report by CERA

In an Article by K. E. Arnold¹² entitled ‘Do you play soccer or football?’ he states ‘..... Insurance companies have been badly hurt and are therefore fighting hard to recover. As a result, the oil and gas companies are pushed to transfer bigger risks and liabilities to their contractors. EPIC/LSTK¹³ contracts are the right vehicle to operate such a transfer. Engineering companies with limited experience in lump sum contracting are more likely to accept, although reluctantly, this transfer of risk. On the other hand, the most experienced LSTK contractors will fight tooth and nail to keep their level of risks commensurate with their profit expectations. So what does it take to play the EPIC/LSTK game with a good chance of success?

- **A thorough estimation process, based on a permanent feedback from previous projects**
- **A clear understanding of the risks involved, leading to a very selective bidding strategy**
- **An efficient project management process, involving, inter alia, a non-complacent cost-control system**

¹² (Article entitled **Do you play soccer or football?** Offshore Magazine Beyond the Horizon, Volume 63 Issue 2 February 2003)

¹³ LSTK means Lump Sum Turn Key

- **A high level of dedication in the project teams and real hands-on management by the company's top management**

Yes, it is a risky game. But for those who know the rules and have developed the right skills, there is always a chance to win the World Cup.’

Unfortunately over the few intervening years Mr. Arnold’s first bullet point (the estimating process) has been adversely affected by the lack of detailed information collected, collated, and utilised. This is due in part to the lack of the old fashioned QS’s attention to detail in providing detailed information (from numerous projects for a variety of Clients with a variety of Contractors) to enable reasonably accurate estimating. In part this is due to a lack of understanding of the very significant differences between the experiences, skills and abilities grown over years of the old fashioned contractor trained agent/project manager and the ‘professional’ project managers of today. These ‘professional’ managers generally have little practical trade and man management experience and now work for both the Client and now unfortunately for many Contractors which together with misplaced cost saving in contract administration by mainly the Contractors but

also significantly in Client organisations reducing the administration to a level where the necessary detailed information cannot be collected.

Another significant effect is that of the metal markets and a severe shortage of labour and supervision. All these conspire together in making a fixed lump sum for a Project that may take anything from 4 to 10 years or more to final completion a risk too far.

The third and fourth bullet point highlight the shortage of suitable personnel and ensuing uncertainty of results, despite the number of people in their late sixties and early seventies still to be found in supervisory, management and trade roles on such projects. In Client and Contractor roles there is a serious need to train people in the necessary skills and attention to detail so sorely missing in today's market. Where have all the apprenticeships, indentures, old CATs¹⁴ and the old C ITB¹⁵ gone?

The content of the second bullet point is however the most important and takes into account all the others in that the Contractors have now decided that the risk of a Lump Sum EPC/EPIC or LSTK are no longer acceptable even with apparently high margins, especially when compared with the building and civil engineering industry. The current sellers market combined with high oil, gas and other commodity prices have further exacerbated the problem and as a result

¹⁴ College of Advanced Technology

¹⁵ Construction Industry Training Board

the Contractors appear to have voted and the Clients are now suffering the consequences.

History:

A cycle is detectable in the manner in which the Contractors are developing their strategies and a feeling of déjà vu ensues.

Taking the UKCS¹⁶ as an example; during the early 1980s most clients carried out developments utilising large ‘Engineering’ Contractors (mostly of US origin or parentage) as a Management Contractor (on a reimbursable cost plus fee basis), with engineering Contracts (usually let on the same basis and often to the same Contractor or a subsidiary) with a series of fabrication contracts for modules, jackets, helidecks, pipelines, installation, tie-ins, etc. (predominantly let on a lump-sum basis) with certification, hook-up and accommodation Contracts (let mainly on a reimbursable basis).

During the late '80s and the '90s, major Contractors pursued a strategy of vertical integration, purchasing fabrication yards, specialist engineering firms, and major suppliers, forging links with installers and pipelay companies.

Simultaneously the Contractors promoted what was essentially a ‘one stop’ shop approach, which, they said, would lead to better coordination and integration, problem solving and transfer of project risks to one main

¹⁶ UKCS means the United Kingdom Continental Shelf (includes NNS, MF, CNS, SNS, West of Shetlands (WoS), EC, IS, West of Britain (WoB). Other offshore areas (South West Approaches, Bristol Channel, Cardigan Bay, Rockall, Liverpool Bay, Manx Basin, Celtic Sea).

contractor (their views on risk assumption however appear to have changed drastically).

Clients bought into this concept in a big way (in fact, almost unanimously). Consequently, small and medium sized Contractors disappeared or were subsumed by what had originally been the management Contractor.

The tide turned and major Contractors sold off or closed and redeveloped yards as housing/offices and sublet the more complex and higher risk elements of the design.

This trend has been further driven on the International market by new project locations, high local content requirements (in most tenders for major Projects), and improvement of standards expected by emerging nations.

Apparently, contractors failed to realise that clients would require similar obligations/liabilities under the EPCm¹⁷ contracts (that they hoped would replace their previous EPC/EPIC contracts) as had been required of their Contractors for the EPCs and EPICs Contracts. This has resulted in Contractors refusing to accept such liabilities without very low caps (inappropriate both to the risk and generally entirely appropriate division of risks and the Contractor's espoused expertise).

¹⁷ EPCm means Engineering, Procurement and Construction - management

In addition; both Clients and Contractors appear not to have fully understood that if a contract is to be reimbursable, no opportunity exists for Contractors to include contingencies for such risks as reworks, warranty, insurance deductibles, etc. In the true cost determined contract price therefore there may be a potential problem with enforcing claims for costs related to such Contractor liabilities. In addition the margins on a potentially significantly reduced company turnover fail to encourage such risk taking.

Recently many court cases have been reported in which the management Contractor has fared badly. However with a reimbursable contract, Contractors may still retain a potential liability. Such liability it should be remembered is generally that of the absolute duty of a Contractor and not the restricted and mere duty of care of a consultant or the even more restricted liability of a body-shop contractor.

Surprisingly, the situation has deteriorated so that Clients are now approaching Contractors for suggestions on the type of contracting/commercial strategies to adopt for their Projects. Some major Clients are even seriously thinking of managing contracts themselves and letting various elements and sub-elements separately.

This opens up a set of common, but divergent problems – Risks; their identification, apportionment and contractual/commercial solution.

What are the parties risk drivers:

We need to identify, risks and their drivers for both the Client and Contractor, deal with their apportionment and contractual/commercial solutions to enable the industry to progress into the 21st Century and beyond.

Let us consider the Client's key drivers many of which are interrelated and common or interrelated to those of the Contractor:

1. Maximised Shareholder returns
2. Contractual obligations to customers (maximising profit and minimising penalties/damages for non performance of obligations)
3. Plant/Facility efficiency with minimal downtime
4. Minimum OPEX
5. Minimum CAPEX
6. Safety

If we now turn to the Contractor we can see that their drivers have a number of similarities:

1. Maximised Shareholders returns

2. Contractual obligations to its Clients (maximising returns to Shareholders and engenders repeat business)
3. Lowest possible construction costs
4. Shortest execution period
5. Minimal risk (reducing the possibility of claims)
6. Safety

The method of managing these risks for both parties is to a considerable extent as follows:

- Risk control
- Risk transfer
- Price control (cost – client CAPEX/OPEX and contractor turnover/ profit)
- Availability of construction and operation contractors
- Ability to carry out difficult to insure work (e.g. UK scaffolding companies finding it difficulty to obtain employers liability coverage).
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An alternative strategy for risk:

In order to solve the problem with risk adversity for both the Clients and Contractors it is essential that both parties drivers are considered and any loss of 'rights' for the Client or liabilities/obligations for the Contractor, are redressed by balancing advantage to the other party with a real solution to those unacceptable risks removed from each of the parties in an endeavour to provide both parties the best solution available.

If we initially remove the cost risks from the Contractor we must also, as far as is possible, remove the contingencies that the Client would otherwise have paid for in respect of the risk the Contractor would have been taking.

In the Oil, Gas and Petro-Chem industries this is already dealt with to a considerable extent in a number of ways as follows:

- (a) CAR provided by Client (sometimes with the deductibles to the Contractor's account regardless of Client negligence)
- (b) Mutual cross waivers in respect of death or injury to each party's (groups including their contractors) personnel regardless of the other parties negligence and in some instances wilful misconduct
- (c) Mutual cross waivers in respect of each party's (groups including their contractors) property regardless of the other parties negligence and in some instances wilful misconduct
- (d) Mutual waivers in respect of consequential losses

(e) Waivers of subrogation

These would I believe remain in any solution.

If execution rather than engineering contractors are utilised in the future the CAR could easily be transferred to them as they almost invariably have a blanket policy that Clients pay for anyway via the corporate overheads.

Few if any of the above risk listed terms are available in the wider construction market including major civil engineering and building projects, certainly very few have any where such generous terms ((d) was in part introduced due to the nature and size of profits involved in the industry).

Can both parties mutually satisfy their requirements?:

I think they can.

If we deal with each element from both sides of the equation we can balance matters as follows:

Contractor's concern with adequately allowing for risks

Client's concern at paying considerable sums for unused contingencies

Stage 1 – Execution Phase:

The use of full Open Book Cost Plus Target Price and Completion Date(s) (no fee element).

Contractor advantages –

1. Only area at risk: Profit and overheads on turnover
2. Guaranteed no nett loss
3. No cost additional profit incentive (to finish inside Target and Schedule completion date(s))

Client advantages –

1. No payment of cost and re-works risk contingencies unused
2. Incentive to combined engineering and management to ensure maximisation of operability and minimisation of OPEX (if necessary by moving the Target either by a pre-agreed sum/time, for any change instructed - not already covered by the requirements of the contract – or failing agreement by moving the Target by the actual cost/time taken for that change)

Stage 2 – Defects Liability Period:

Open Book Cost Plus Target Price and Completion Date(s) continues

Contractor advantages –

1. Usual right to rectify continues
2. All costs incurred reimbursed via Cost Plus Target system (savings share – if any – paid out at end of the Defects Liability Period)

3. Snagging lists and rectification work can be planned and executed together

Client advantages –

1. Less problems with snagging and defect correction as cost comes from Target and Contractor incentivised as speed tends to reduce cost and by the saving share payout being made only on completion of Defects Correction/Completion Period
2. Pays only the costs actually incurred whilst still part of the Target process

Stage 3 – Contract liability beyond the end of the Defects Correction/Liability Period:

Open Book Cost Plus Target Price and Completion Date(s) ceases

The Contractor undertakes to provide immediate assistance to the Client in the event of any problems of whatever nature throughout the whole period of the contract liability (through the operating, design and fatigue life, decommissioning and removal) on an open book nett cost only basis.

In the event that the problem is not found to be of the Contractor's making a pre-agreed percentage on the nett costs incurred is paid to the Contractor.

Contractor advantages –

1. No fear of potential serious losses (possibly limited by some sort of negotiated cap if enforceable)

2. No risk of invalidating an insurance by assisting the Client without the insurers permission and involvement
3. No need to incur expensive insurance costs related to such risks
4. No long tail liability in respect of this risk (important from an SEC/IR returns point of view)
5. Continuing involvement with Client (likely to lead to directly negotiated contracts for expansions, modifications, de-bottlenecking, etc. to that plant/facility)
6. Ability to research and solve design, engineering, construction, material and plant problems on a (nett) funded basis and to impart the necessary modifications and solutions to other Clients (in some legislations an obligation in law)
7. Reduction in adverserality

Client advantages –

1. Reduced adverserality in the process of obtaining the Contractor's assistance in rectifying the problem
2. No insurance or contingency costs paid to Contractor
3. No legal fees chasing an ever diminishing value capped liability with no certainty of winning or recovering anywhere near the costs

involved (not to speak of the management time and costs involved and the delay in getting the plant and facilities up and running and making rather more money than would be lost by any delay in investigating the solution)

4. Relationship with the Contractor (who may be working on other projects for the same Client) is maintained to mutual benefit of both parties
5. Any defects in design, material, workmanship and equipment discovered on other facilities and installations is shared so that modifications can be planned and major outages avoided

The consideration given to project life and associated insurances:

To manage risk in large and complex projects and minimise the cost of such control requires innovative ideas.

Traditionally, risks were covered by insurance or devolved to various contractors (hopefully still solvent and existing and/or insured possibly 20-30 years later when claims arise). Many such policies duplicated coverage or left certain risks uncovered.

Serious consideration must now be given to project life insurance.

Operators/developers have large international portfolios in some of which they may only be minor joint venture partners. Most have sufficient

business in construction and operation insurance to generate market interest in agreement to provide a suitable scheme. Alternatively, consideration could be given to managed mutuals (clubs) or captives.

I have already contacted a number of insurance arrangers currently involved in other aspects of the Oil and Gas industry and major project (Channel Tunnel, Heathrow Express, etc.) who would be prepared to work closely with Clients to provide managed services.

Most Clients already have captives that can be expanded for this purpose but probably better (certainly cheaper and with the added advantage of feed back from the other members) a mutual/club (rather like P and I insurance in the ship owning and operating industry).

Where does the funding come from?

Funding comes from a contribution levied on the turnover or profit of each facility or installation (thus it is cheaper the more members or the more facilities/installations owned and operated). In the unlikely event that the fund generated does not cover the costs of rectification then the partners in the scheme make further contributions (based on the proportion of their usual contributions) to make up the short fall.

Conclusions and questions:

Can both parties mutually satisfy their requirements? I believe a contractual and commercially viable agreement can be reached.

With a contract let on Cost Plus Target, fully open book basis such cost is controlled by commonality of interest. The target being bid and set by the Contractor (if the Client is able to prepare a budget for sanction, the Contractor can clearly calculate a Target Cost without expensive and tender list depleting FEED contracts). This gives an earlier start and thus a potential 6 to 18 month saving in time to operation and income and no free issue equipment or nominated sub-contractors with all the problems that engenders.

Hopefully more real execution Contractors will be encouraged to bid further reducing the overall CAPEX and possibly, if they are able to tender operation and/or maintenance the OPEX.

To minimise the budget, the 'cost plus' strategy should cascade as far as possible down the chain to avoid incurrence of risk-related contingencies at multiple levels with multiple mark-ups. A client's budget will still contain the usual contingencies for the overall project (the contractor remaining incentivised by an allocation system of costs against relevant targets in target-based contracts).

Effectively by the Client investing in the loss of the ability to sue the Contractor they gain immediate assistance in problem solving and an enduring relationship with the Contractor.

The Contractor loses the potential no cost profit from an unused contingency or the use of cheaper/lower specification materials and equipment and in return gain the advantage of a contract on which they cannot actually lose money and which forges a long term relationship with their Client.

Obviously other cost saving can be introduced to such a contracting strategy but what is most important is that some major Client (preferably a JV) is brave enough to give this concept a serious try on a major project.

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