
Early Contractor Involvement

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Early Contractor Involvement

Improving the management of contract risk

**Michael Smith, Matthew Finn,
Dr Jon Broome and Catherine Maddox**

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About the authors

Dr Jon Broome BEng PhD FAPM. Jon's expertise in contract strategy started to grow in 1998 when, having completed his PhD on the practical application of the NEC form of contract, he did two years of research in collaborative contracting strategies, resulting in his 2002 book *Procurement Routes for Partnering: a practical guide* (ICE Publishing). For the last 25+ years, Jon has been an independent consultant at Leading Edge Project Consulting Ltd, UK. While his 'home' sector is heavy engineering and construction, he has helped set up innovative commercial/contractual arrangements for projects in the ship-building, aerospace, defence and coal-mining sectors. In the heavy engineering and construction sector, Jon has helped set up numerous early contractor involvement and alliance arrangements. His involvement has ranged from helping develop the 'big-picture' contract strategy; to drafting contracts; refining technical documents and assisting in their set-up, as a trainer, facilitator and chair of regular meetings.

Jon is also well-known for his expertise in NEC contracts, a former long-term chair of the Association for Project Management's (APM) Contracts & Procurement Specific Interest Group and a former deputy chair of the APM itself.

Matthew Finn BSc Hons LLM FCI Arb MCInstCES FCI OB FRICS MAE MEWI is a Senior Managing Director at Ankura, based in London, and leads the firm's quantum practice in construction, disputes and advisory. He is regularly appointed as an expert witness in the field of quantum (damages) in energy, infrastructure and construction matters. He has given oral evidence on many occasions in UK litigation and in many high-value international arbitrations (up to US\$10 bn disputes) under both traditional cross-examination and under concurrent evidence by leading King's Counsel. He has submitted more than 100 quantum expert reports in litigation and in international arbitration under ICC, SIAC, UNCITRAL, LCIA, SCC and PCA rules. Matthew has been recognised in Who's Who Legal since 2018 and is ranked as a Global Elite Thought Leader in 2023 for arbitration, quantum and delay, and construction. He was the sole winner of the Arbitration Expert Witnesses UK at Lexology's Client Choice Awards 2021.

Matthew has worked in the construction industry as a chartered quantity surveyor and chartered construction manager in both consulting and contracting organisations. He has worked on a range of projects for major contractors and consultancies on projects for private, corporate and public body clients. He has worked on projects in the building, civil engineering, nuclear, rail, oil and gas, and building services sectors. In addition to expert witness appointments, Matthew is a certified civil and commercial mediator, construction adjudicator, international and domestic arbitrator.

Catherine Maddox is a Senior Associate at Ashurst LLP in London. Catherine specialises in public procurement law and qualified as a solicitor (England and Wales) in 2015. She advises central and local government authorities, other public sector bodies and utilities on the application of public procurement rules. Catherine advises on the structuring of complex procurement processes, including choice of tendering procedure, preparation of procurement notices, the drafting of tender documentation and obligations during the award and debriefing stages.

She is currently advising Great British Nuclear on the procurement of the major works packages for its forthcoming small modular nuclear reactor programme.

Michael Smith is a Senior Consultant at Ashurst LLP in London. He has over 30 years of experience, advising on the construction aspects of major infrastructure project procurement, domestic and international EPC contracting and all other areas of noncontentious construction and engineering law, with a particular focus on the thermal, nuclear and renewable energy sectors, including energy from waste, solar and on- and offshore wind farm development.

His clients include the UK Government, funders, sponsors and contractors. Michael has advised on nationally significant infrastructure projects including the Hinkley Point C nuclear power project, the HS2 rail project, the Thames Tideway Tunnel project, the East West Rail project, the Edinburgh Tram project and the Moray Firth East and West offshore wind farm projects. He is currently advising Great British Nuclear on the procurement of the major works packages for its forthcoming small modular nuclear reactor programme.

Michael Smith, Matthew Finn and Jon Broome

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Chapter 1

Construction procurement models: options and trends

Michael Smith

Abstract

This chapter describes

- the various construction procurement options currently in widespread use within the UK
- the factors that should inform a decision on the most appropriate construction procurement option for any given project
- current market procurement trends and the reasons why a two-stage contracting model should now gain more traction within the UK infrastructure sector than it has done to date.

1.1. Introduction

Previous experience within the UK construction industry has led all project stakeholders, including the UK Government, to question whether the previously widespread use of a single, lump-sum, turnkey contract to procure the development of infrastructure assets, often by way of a limited recourse project financing structure, is in the best, long-term interest of all project participants.

Until fairly recently, those funding or sponsoring such projects tended to support the view that the use of a single, turnkey, design and construction contract was the only appropriate procurement choice, unless they were unable to find a contractor willing to wrap that degree of risk transfer on a particular project. Looked at from a purely legal perspective and while standing in the shoes of a risk-adverse project sponsor or lender, it was difficult to counsel against that conclusion.

However, just as the rest of the world is beginning to embrace the limited recourse project financing models developed in the UK over the last 20 years, we are changing direction. While it is not unusual for the UK to head in a different direction from the rest of Europe, on this occasion there may be consensus that it is doing so for the right reasons.

The UK Government has always been concerned about the adversarial nature of the UK construction industry. Ever since Sir Michael Latham focused attention on it in his groundbreaking report (*Constructing the Team*, [Latham, 1994](#)), there has been a concern that the industry uses contracting arrangements that are adversarial in nature. As such, they promote disputes and do not operate in the best interests of both parties. That concern has been significantly addressed in the intervening years, not least by the advent of the NEC suite of standard form contracts.

However, other developments within the industry, including the Government's sponsorship of the private finance initiative (PFI) to procure public infrastructure, have given rise to new concerns. The Government's support for public-private partnerships (PPPs) was eventually undermined by criticism from all sides that the model does not deliver value for money and concern at what were perceived to be excessive profits being made by the private sector. At the same time, some significant events (including the demise of Carillion and the difficulties which led to Interserve's exit from the waste to energy sector) demonstrated the potentially disastrous consequences of a single entity wrapping the entire project delivery risk without perhaps properly understanding the nature of that risk and making appropriate allowance for it. This led the Government to declare, at the end of 2018, that it would no longer use the PFI/PPP delivery model for the procurement of public infrastructure works.

In the report on its investigation into the rescue of Carillion's PFI hospital contracts, published in January 2020, the National Audit Office observed

On the one hand fixed-price contracts, like PFIs, can ensure that contractors are both incentivised to manage costs and bear the brunt of cost rises. On the other hand, some risk ultimately remains with the public sector; when things go wrong beyond a certain tipping point, the public sector will bear the consequences. For these projects the tipping point was reached through a combination of high cost overruns on the construction and the failure of the contractor who had been expected to pay for them ([National Audit Office, 2020](#): p. 6).

The National Audit Office stated that the cost over-runs were largely attributable to design problems at hospitals and observed

The PFI companies and investors are meant to rely on their contractors to manage the design of the projects. The investors' payments to the PFI companies are made in line with technical adviser reports that track progress against plan and provide no assurance over the design. We have not looked at what went wrong with the design process within Carillion and its subcontractors. NHS England and NHS Improvement and a few individuals involved in the construction projects told us that one of the causes may have been that Carillion's original pricing was too low to meet the required specification ([National Audit Office, 2020](#): p. 21).

As a consequence of these concerns, there has been a developing consensus within the UK that the Client side of the construction industry needs to engage earlier and better with the whole of its supply chain in order to properly understand and manage the particular construction risks on any given project. Stepping down the whole of that risk to a single contractor who has priced that risk in a highly competitive environment may no longer be seen as representing value for money and may even be considered unwise in certain technologically challenging sectors.

The authors of this publication believe that this consensus is now leading to the more widespread use of a two-stage contract delivery model. This model is most commonly based on the use of a standard form contract – the NEC4 Engineering and Construction Contract (NEC, 2017), incorporating the main pricing Option C (Target Contract with Activity Schedule) and the Secondary Option X22 (Early Contractor Involvement). The Contractor is reimbursed on a ‘cost plus (fee)’ basis. A two-stage appointment process, which provides for early contractor involvement (ECI) during the stage one design phase and a target/outline construction cost incentive scheme during the stage two construction phase, is then used in order to

- interrogate, understand and manage out construction risk before the parties commit to a target price for the stage two construction phase
- manage the cost escalation risk that is inherent with such a delivery model.

This procurement model has been used and refined by those involved in some of the largest civil works infrastructure projects within the UK over the last ten years – projects on which, given the nature of the design and construction risk, there was little or no market appetite for a single, turnkey wrap.¹ This model and variants of it, including that referred to in the following paragraph, are explained in more detail in Chapter 4 *Managing cost escalation on a cost reimbursable contract*.

The use of such two-stage contract delivery models has been promoted by the UK Government for several years. As long ago as July 2014 the UK Government Cabinet Office produced guidance on three new models of construction procurement for public sector clients, including a ‘two-stage open-book’ model. Peter Hansford, the Government Chief Construction Adviser at the time, stated in the foreword to the guidance that the aim of the Government Construction Task Group was to

provide cost certainty, which is an essential element of providing better long-term value from the delivery of construction projects. It is vital that *clients* enter the procurement process knowing what their projects should cost and that the procurement vehicle adopted provides them with confidence of what their projects will cost (Cabinet Office, 2014: p. 1).

The guidance cited NEC3 Option C, the JCT Constructing Excellence Contract and the PPC 2000 (published by the Association of Consultant Architects (ACA)) as appropriate standard form contracts for the implementation of the proposed two-stage open-book model. Since then,

the NEC has issued its Secondary Option X22 (Early Contractor Involvement) for use with the NEC4 Engineering and Construction Contract and the JCT has issued its Pre-Construction Services Agreement to serve as the first stage in a two-stage process.

1.2. Historical construction procurement options for major infrastructure projects

Set out below is a summary of the three forms of construction procurement that have been most commonly used across the various UK construction industry sectors to date. As we discuss in more detail below, the procurement options that are most commonly used within a particular industry sector will depend on the technical and commercial considerations relevant to that sector and the approach to risk allocation and the pricing thereof that is adopted by the project stakeholders who are most active within that sector.

1.2.1 Construct only

With this traditional form of procurement most, if not all, of the design is carried out by a design consultancy team engaged by the Client. The Contractor is then engaged to build to that design, although it may have responsibility for some design, sometimes known as ‘the contractor’s design portion’.

Examples of current standard form contracts which are most commonly used in the UK for this type of procurement include

- FIDIC 2017 Red Book ([FIDIC, 2017](#))
- NEC4 Engineering and Construction Contract, Option A or B (Priced Contract) ([NEC, 2017](#))
- JCT Standard Building Contract, 2016 Edition ([JCT, 2016](#)).

1.2.2 Design and build

The main contractor is responsible for the design and construction of the works, thereby creating a single point of responsibility for both the design and construction of the whole of the works – sometimes referred to as a ‘turnkey’ contract or (in the process engineering sector, in particular) an ‘EPC’ contract – that is, an engineering, procurement and construction contract.

As the Contractor will be responsible for the whole of the design of the works under this procurement model, if any of the output design requirements included within the works specification were actually prepared by a design consultant appointed by the Client, the Contractor may insist on the novation of that consultant’s appointment agreement so that it has a contractual nexus with the author of that design.

Variant forms of this procurement approach, whereby the Client retains responsibility for the output design requirements included within the works specification, with the Contractor

responsible for the detailed design development and construction of the works, are usually referred to as ‘design and build’ or ‘design and construct’ contracts, in order to distinguish them from single point, ‘turnkey’ contracts.

Examples of current standard form contracts which are most commonly used in the UK for this type of procurement include

- FIDIC 2017 Silver Book, Turnkey Contract
- FICIC 2017 Yellow Book, Design and Build Contract
- NEC4 Engineering and Construction Contract, Option A or B (Priced Contract) or Option C (Target Contract)
- JCT Major Project Contract, 2016 Edition
- JCT Design and Build Contract, 2016 Edition.

1.2.3 Construction management

The Client appoints a number of different contractors and/or consultants to carry out the various elements of the works, which are sometimes referred to as ‘packages’, as well as a construction manager whose primary role is to manage the construction interface between the various package contractors on behalf of the Client. Package contracts may include design consultancy services or construction works or may be let on a design and build basis.

Examples of current standard form contracts which are most commonly used in the UK for this type of procurement include

- FIDIC 2017 Yellow Book, Design and Build Contract for package contracts and FIDIC 2017 White Book, Model Services Agreement for the construction manager’s appointment
- NEC4 Engineering and Construction Contract, Option A or B (Priced Contract), Option C or D (Target Contract) or Option E (Cost Reimbursable Contract) for package contracts and NEC4 Professional Services Contract for the construction manager’s appointment
- JCT Construction Management Trade Contract and Construction Management Appointment, 2016 Editions.

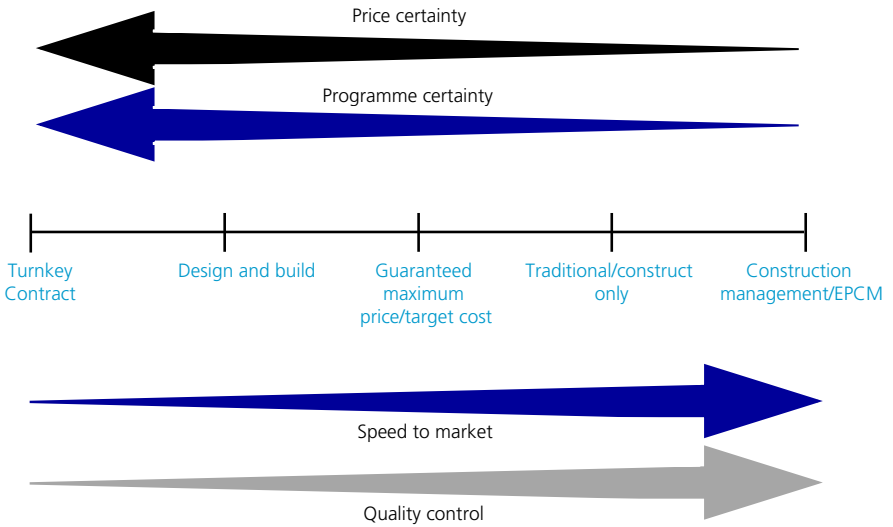
1.3. Key factors that will influence the choice of construction procurement option

1.3.1 Time, cost and quality

Historically, most professionals operating within the construction industry have been taught that procurement decisions should largely be based on the need to balance the three (mostly competing) points of the ‘procurement triangle’, comprising time, cost and quality. As a theoretical consideration, that is undoubtedly as true now as it ever was.

By way of example, Figure 1.1 seeks to summarise, in very simple terms, some of the theoretical advantages and disadvantages of a single, lump sum, turnkey contract on the one hand and a multicontract construction management procurement on the other hand.

Figure 1.1 Advantages and disadvantages of a turnkey contract against a multicontract construction management procurement (author’s own)



In practice, however, the Client’s decision on how best to balance its competing time, cost and quality requirements is likely to be driven by the key considerations, shown in [Tables 1.1](#) and [1.2](#).

Table 1.1 Key considerations for single contract turnkey models (continued on next page)

| Advantages | Disadvantages |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Single point responsibility for design and construction. | The Contractor largely controls the design development process and therefore the detailed design solution. |
| The Client’s risk is limited: the Contractor takes on the majority of the risk and does so for a fixed price. | The Contractor largely controls the selection and appointment of its supply chain. |

Table 1.1 Continued

| Advantages | Disadvantages |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bankability: a fixed, lump sum price and fixed date(s) for completion of the works facilitate the financial modelling on which the financing of the project is based. | Assumption of risk attracts risk premia forcing up contract price in a manner which may not represent value for money for the Client. |
| Performance of the completed works/asset and protection of the Client's revenue stream: subject to appropriate liability limitation provisions, the Contractor will usually guarantee the performance and/or availability of the facility which comprises the completed works and pay liquidated damages in respect of any shortfall in the guaranteed/modelled performance and/or availability. | All the Client's eggs are in one basket in the event of the Contractor's demise (although this risk is usually offset to a material degree by the Client affording itself the right to step into key subcontracts and by the provision of performance security in relation to the Contractor's liabilities on any consequent termination of the contract). |

Table 1.2 Key considerations for multicontract construction management models

| Advantages | Disadvantages |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The Client has greater control over works packaging and design development processes. It has the flexibility to choose its own supply chain, rather than be tied to that of a turnkey contractor (whose best interests may be served by its relationship with its subcontractors rather than the Client). | The Client has multiple points of accountability that need to be proactively and effectively managed. This may make it more difficult for the Client to secure third-party finance for its project (unless it is able to evidence that it has the experience, expertise and management resource necessary to mitigate and manage the elevated risk of multiple interfaces and disputes). |
| The Client can begin construction earlier than would otherwise be the case – design development and construction of any parts of the works which are not interdependent can be carried out concurrently. | The Client retains the interface management risk between the various works packages and is usually able to step down only a very limited amount of that risk to its construction manager. Including an effective incentive scheme across the various works packages and perhaps including the construction manager within that scheme may go some way to mitigating this risk, as discussed in Section 4.3 of Chapter 4. |
| Early involvement of supply chain facilitates value engineering, 'buildability' analysis, pricing discounts and avoidance of a turnkey contractor's mark-up. | Fixed, lump sum prices may be difficult to obtain across the package contracts. |

1.3.2 Project finance

If the Client is seeking to raise debt finance to fund any part of the project capex on a limited recourse basis so that, at least initially (i.e. until the works are complete), there is no asset providing security to the funders for repayment of the debt, the funders are likely to insist on a procurement structure which delivers the greatest degree of certainty on project cost and programme.

Traditionally that has meant a turnkey or design and build contract solution, although there have been some notable recent exceptions to this general rule. The absence of contractors willing to provide a turnkey ‘wrap’ solution in the offshore wind sector has led to certain market-leading developers securing debt finance on what are essentially construction management procurements. Debt finance has also been raised for construction management procurements in the solar sector, when the interface risk has been viewed by the funders as low and therefore manageable. It is also not uncommon to see construction management procurements funded in the oil and gas sector, where the project sponsors are used to providing completion guarantees in order to secure that finance.

On a corporate finance project, the Client will have greater flexibility to choose the procurement structure which prioritises its commercial objectives. It is therefore likely to focus more on a structure which reduces the initial capex of the project, particularly if it has the available resources and expertise necessary to deliver a construction management or engineering, procurement and construction management (EPCM) procurement.

Looking forward, it appears increasingly likely that the UK Government will seek to use the regulated asset base (RAB) funding model to secure private sector finance for major, green-field infrastructure projects in the nuclear energy and aviation sectors. The RAB model has been used elsewhere in the world to secure major infrastructure for regulated utilities but the UK Government is currently developing its own model in consultation with the likely project sponsors and investors. It is anticipated that, under its RAB model, those investing in the project will earn a return on their investment during the construction phase and those carrying out the work will be incentivised to control unnecessary costs escalation by the use of target price contracting.

1.3.3 Client resources

The extent of the management resource available to the Client, either internally or externally by way of a consultancy support services agreement, should be a key factor in the Client’s decision making process. Anecdotal evidence from some of the earlier construction management procurements in the UK has led to the conclusion among most commentators that the success of this more labour-intensive procurement option is primarily dependent on the Client’s level of resource and track record in that type of procurement.

1.3.4 Client risk appetite

The Client’s approach to risk management will also be a key factor in determining how it wishes to structure the procurement. Normally the Client (and/or its funders) will prefer to