



Delivery  
models

# 08 Delivery models

Investing in Energy Transition Projects  
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# Contracting delivery models

## Purpose

The purpose of the first section of this paper is to outline a range of delivery models commonly used in the delivery of complex infrastructure projects, including:

- Engineering, Procure and Construct (**EPC**)
- Novated EPC
- Engineering and Procurement and Construction Management (**EPCM**)
- Project Management Contractor (**PCM**)
- Early Contractor Involvement (**ECI**)
- Front End Engineering Design (**FEED**).

The choice of the delivery model involves balancing a number of considerations, including:

- the degree of complexity of the engineering of the project
- how much control the Principal wants to retain or be involved in overall design
- budget constraints
- time constraints
- the experience and capability of the Principal, including the Principal's degree of knowledge of design and construction and the extent and nature of the Principal's resources (including the skills and expertise of the Principal's team)
- the depth of the Contractor/consultant market
- the size of the project
- requirements of external stakeholders such as Financiers and offtakers.

## Ancillary documents

The following documents are useful to Principals when considering the appropriate delivery model and determining their appetite for risk alongside balancing the proceeding factors:

- a contracting and procurement plan (**Appendix 1**)
- a risk register and action plan (**Appendix 2**)
- a traceability matrix.

A contracting and procurement plan analyses and recommends a chosen project delivery model and contracting and procurement approach. This is done with a view to providing best value and risk outcome for the project. This is to be achieved through least capital and operational expenditure and taking into account the Lenders' bankability requirements in respect of time and cost certainty and quality and volume of output. This plan typically provides for a base case scenario for formulating the detailed contracting and procurement procedures for the execution phase of a project.

A risk register records details of all the risks identified for the project. Risks associated with activities and strategies are identified, then graded in terms of likelihood of occurring and seriousness of impact. Risk registers typically contain the following information:

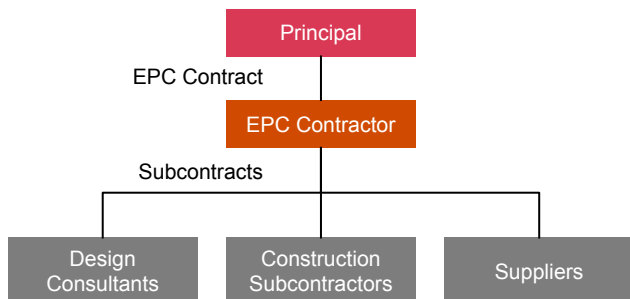
- a description of each risk and its potential consequences (operational and strategic)
- factors that may impact upon the likelihood and consequence of the risk
- an assessed risk grade – Low, Medium, High or Extreme and whether this risk grade is acceptable
- actions and controls that currently exist to mitigate risks
- early warning factors and upward reporting thresholds.





The process of identifying and analysing risks should be a part of tactical decision making and be dealt with in the initial planning of the project.

The traceability matrix is then used to trace how the plan and the risk assessment has been implemented through the contracts.



## EPC

Under an EPC structure, the Principal enters into a contract with the EPC Contractor to carry out all aspects of the design, construction and commissioning of the project. The EPC Contractor will then enter into various subcontracts with subcontractors, Consultants and suppliers for performance of discrete portions of work. The EPC Contractor might self-perform some aspects of the scope of work.

The **advantages** of the EPC structure for a Principal include:

- the EPC Contractor is the sole source of responsibility for the performance of the key promises, usually performing the scope of work so that it fulfils the Principal's requirement for the contract sum and by the agreed date for completion
- procurement is easier (there is only one contract to procure)
- the Principal requires fewer resources
- the Principal obtains a warranty of overall fitness for purpose from the EPC Contractor
- bankability is enhanced due to the clarity of the major promises and the single source of responsibility
- interfaces are minimised.

The **disadvantages** of the EPC delivery structure include:

- the Principal loses control over project delivery
- the checks and balances that are usually present when design and construction are separate do not usually exist, as the design and construction are performed through one entity
- under-design is more difficult to detect and may result in latent recurrent operational or maintenance problems and costs in the completed project
- it is more difficult to compare tenders where the designs, assumptions or the construction methodologies differ
- the price can be higher, and the time allowances can be more generous to take account of the additional risk assumed by the EPC Contractor

- variations can be expensive
- a Principal must rely solely on one organisation for recovery of compensation if something goes wrong with the project.

## Novated EPC

Under a novated EPC approach, the Principal engages design consultants (under contracts obliging them to agree to being novated at the Principal's direction to a construction Contractor). The design consultants carry out the design to an appropriate stage. Generally speaking, the design stage is sufficiently advanced for the Principal to feel comfortable that it will receive the type and standard of facility it is seeking, but not so advanced that the benefits of an experienced construction Contractor's buildability and other time-saving practical input will be lost. The Principal then engages a Contractor who agrees to accept the novation of, and responsibility for the work of, the design consultants who enter into new (novated) contractual arrangements with the Contractor.

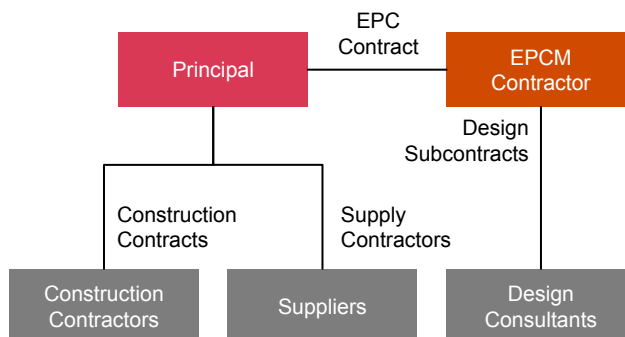
The **advantages** of the novated EPC approach for the Principal include:

- the close relationship between the Principal and the design consultants at the early stages of design retains for the Principal the opportunity to monitor and provide direct input into the design process
- a closer relationship between the Contractor and the design consultants in the later stages of the design process so that the design can take account of constructability issues and methods of working of the Contractor
- the scope is further defined, permitting more accurate pricing and programming
- the Principal retains the benefits of an EPC delivery model (including obtaining a warranty for fitness for purpose from and single point of responsibility in the Contractor, and a higher degree of certainty in the design process compared to the standard EPC structure).

The novated EPC delivery structure has two primary disadvantages.

Firstly, if the consultants retained are not experts, the EPC Contractor might refuse to accept the novation.

Secondly, the Principal must ensure that the design briefs and contractual terms applicable to the consultants who are to be novated are consistent with the EPC contract and its technical requirements.



## EPCM

Under an EPCM structure, the Principal engages an EPCM Contractor to carry out the engineering design and to manage the procurement and construction of the project. The Principal enters into direct contracts with suppliers and construction Contractors for the project. EPCM structures may be used in the delivery of large projects where a Principal is keen to take a 'hands on' approach throughout the project, often with an expectation that getting things right will take 'fine tuning' to design.

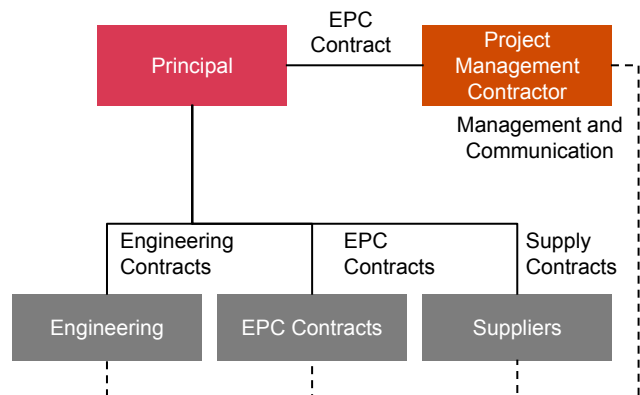
The **advantages** of the EPCM delivery structure include:

- it allows fast track construction due to phased design and construction. Project delivery can be competitive in overall design-construction time as compared with an EPC approach
- the Principal retains more control over design development (than in an EPC approach) while at the same time, the design can take into account constructability issues (such as access, construction problems and particular methods of working employed by the Contractor) by using the construction management skills of the EPCM Contractor.

The **disadvantages** of the EPCM structure include:

- there is usually no firm project cost established until construction is well underway
- security is fragmented and more difficult to access
- a larger and more expert Principal team is required
- neither the EPCM Contractor nor the construction Contractors warrant that the project, when completed, will achieve all of the operational requirements of the project (that is, no warranty of fitness for purpose)
- there is the risk that the overall quality and performance of the project may be subordinated to the EPCM Contractor's desire to maximise cost and time performance-based incentives incorporated into its remuneration. For example, because of the inability to fix project costs, various techniques are adopted such as awarding a larger portion of the project early in the project or setting targets for each portion of the project work and then trying to maintain the targets. The techniques used to minimise cost overruns can sometimes compromise the quality of the project. In addition, the opportunity for the EPCM Contractor to cover up its own design deficiencies by the way it manages or procures construction packages is greater
- the successful integration of design and construction functions and avoidance of changes/modifications to the design are largely left to the EPCM Contractor. The Principal may not be aware of potential conflicts of interest or weaknesses in the EPCM Contractor structure that may interfere with economical and timely project completion.

The features that distinguish EPCM from the Managing Contractor model are discussed under section 3 of this paper 'Collaborative Contracting'.



## PCM

Under a PCM structure, the Principal engages a Contractor to project/contract manage, or a project manager to contract/project manage to assist the Principal in the management aspects of the project delivery process. The Principal enters into direct contracts (supervised on its behalf by the PCM) with design Contractors, construction Contractors and suppliers.

Under the PCM structure the manager/Contractor is nominated as the Principal's agent to manage the direct contracts with designers, Contractors and suppliers.

The **advantages** of the PCM structure for the Principal include:

- the construction management skills of the PCM can be utilised without the inherent conflict of interest of it also being the designer. The PCM can play an active role in evaluating design tendered by design Contractors, so as to effect value engineering to reduce costs and to make suggestions as to how to improve the performance outcome of the design
- individual project components are performed by the most expert specialists in those fields, so that each risk is spread to those best equipped to take it and is thus minimised for the overall project
- there can be independent evaluation of cost, schedule and construction performance (including evaluation for changes/modifications in design) by the PCM as it is not the designer or Contractor
- full time, objective co-ordination between the design and construction Contractors (both horizontally, between different designers or between different construction Contractors, and vertically, between designers and construction Contractors) is available by dedicated resources
- if the management function is well executed, project delivery can be competitive in overall design-construction time as compared with the EPC and EPCM structures.

The **disadvantages** from a Principal's perspective include:

- in using a phased construction approach, the Principal begins the project before the total project price is established. The issue is whether the possibility of early completion is a sufficient trade-off for this cost risk
- security is fragmented and more difficult to access
- the Principal has certain responsibilities and obligations under the infrastructure contracts that must be met in a timely manner – for example, delays in the design development or supply of Principal-supplied materials and equipment can have serious time and cost consequences for the Principal. The Principal heavily relies upon the PCM to manage the Principal's performance of these responsibilities and obligations
- similar to an EPCM delivery structure, it would be difficult to procure a warranty for fitness for purpose for the Project from either of the PCM, the design Contractors or the construction Contractors as the PCM is not performing either design or construction and neither the engineering designers or the construction Contractors are solely responsible for both the design and construction of the project
- the success of project implementation depends on the planning, estimating and project management skills and resources of the PCM
- the PCM does not usually give a guarantee either in terms of overall price or the quality of the work (this contrasts with the corporate 'wrap' or guarantee of the design and construction of the whole project given under an EPC structure).

## ECI

ECI involves Contractors in the preliminary design and procurement processes without being guaranteed the award of the main contract.

This procurement method comprises a two-stage process:

### Stage 1

The Contractor proceeds with the design development; works with the Principal on identifying, mitigating and apportioning engineering and constructability issues and risks; prepares a preliminary design and submits a detailed design for pricing for stage 2 (which proceeds at the discretion of the Principal).

### Stage 2

Construction commences, usually pursuant to a design and construct model, with key construction risks and issues already identified and defined in stage 1, allowing for a guaranteed contract price for the project. Stage 2 typically includes KPI incentivisation procedures or other ways of sharing risks and rewards to continue the collaborative and cooperative themes of the ECI procurement method.

At the end of Stage 1, the ECI Contractor makes an offer to complete the design and construction of the project. If the offer is accepted, it will enter into the main contract with the Principal. If the offer is not accepted, the Principal may use the materials generated during the ECI phase to conduct a conventional tender process.

A competitive ECI process might be conducted in complex projects, where two or more ECI Contractors compete for the main contract.

## FEED

Under a FEED contract, the FEED Contractor prepares the front-end engineering design. The FEED design will be completed to the point of establishing design feasibility and an overall process design. It will sometimes deal with specialised plant and equipment selection.

The objective of the FEED contract is to develop and document the front-end engineering and design processes so that the Principal can obtain final project approvals. It also involves submitting required applications to authorities whereby the resulting documents can form a basis for the EPC contract.

The **advantages** of the ECI and FEED structures for a Principal include:

- identification, mitigation and/or proper allocation and pricing of risks in the initial stage, allowing for a number of initial risk uncertainties to be removed so that the parties can agree to a more realistic risk-adjusted price
- reduces the costs of tendering as only one design process is undertaken
- enhanced value for money outcomes through early Contractor involvement in design and pricing
- encouraging a deeper understanding of project requirements
- optimising construction efficiencies and improving profitability by reducing operating costs and ensuring more efficient delivery.



# Alliancing

Alliancing is a co-operative form of contracting where the participants enter into a relationship (the alliance) which is designed to align the interests, resources and skills of the participants through shared management responsibilities, risk sharing and restricted legal liability.

This section of the paper considers the nature and features of alliancing and when alliancing should be used.

It is important to understand the decision whether to use alliancing as the framework for delivery of a project is dependent on the size, nature and complexity of the project as well as the participants involved. This is extremely important as there are significant dangers if alliancing is used as the framework for delivery of a project without appropriate consideration of these factors and the other issues identified in this paper.

## Core features

There are five features which differentiate alliances from conventional construction procurement.

- The first is the **remuneration regime**. Alliances fundamentally alter the remuneration arrangements and risk allocation found in conventional fixed-price contracts, by replacing the fixed price with a performance based remuneration regime that better aligns the commercial interests of the participants.
- Second is the creation of a **virtual organisation** – the integrated project team or ‘alliance’ – comprised of the individual team members provided by the project Principal and each non-Principal participant.
- Third is the **continuous involvement** of all non-Principal participants from the moment the contractual relationship is formed – usually very early in the project scoping and design process until project completion.
- Fourth is the requirement for all decisions regarding the project to be made by way of **unanimous agreement** between the Principal and all of the other participants in the integrated project team.
- Fifth is the **no blame, no disputes** clause, under which each party agrees that it will have no right to bring any legal claims (including liquidated damages) against any of the other participants in the integrated project team, except in the very limited circumstance of a wilful default by another participant.

Some alliance contracts don't fully embrace all of these features, however, these are the essential elements of alliancing that should form the basis of initial negotiations.

It is important that the parties understand the nature and the limitations of the particular alliancing model that they are adopting. It is critical that the parties are aware of the reasons why they are considering alliances as opposed to traditional procurement methods and to appreciate the effects of their decisions on the achievement of the goals they are seeking to achieve.

## Remuneration and risk allocation

Under conventional infrastructure contracts, the Contractor is typically remunerated on a fixed price or rates basis, subject to increases (or decreases) for events detailed in the contract. As explained above, this conventional approach sets the interests of the Principal and the Contractor in fundamental opposition to each other.

Dissatisfaction and disputes are frequent, especially where the scope is uncertain at the time of contracting or when risk and remuneration are not aligned.

The alliance model discards the traditional fixed price method of remuneration in favour of a project outcome based remuneration regime.

Under the typical alliance model, the remuneration of each non-Principal participant essentially comprises three discrete components:

- **limb 1 – direct costs:** the reimbursement of the non-Principal participant's project costs on a 100 per cent open book basis
- **limb 2 – fee:** a fee to cover normal profit and (non-project specific) corporate overheads
- **limb 3 – gainshare/painshare:** a gainshare/painshare regime where the rewards of outstanding performance and the pain of poor performance are shared equitably among the Principal and the non-Principal participants.

The compensation under limbs 2 and 3 usually relates to the concept of the target outturn cost (**TOC**), which is the jointly estimated cost of carrying out the project works to completion and achieving the minimum outcomes in the major project objectives as negotiated. It includes a contingency for risks that may arise and often includes the project Principal's own costs of participating in the integrated project team.

The TOC is the end product of the initial phase of the alliance relationship, during which the participants firm up the scope of works and agree the other key project benchmarks. These are usually negotiated and often an independent validation that the TOC represents a reasonable estimate.





## Limb 1 – Direct costs

Direct costs are all specific costs and expenses directly incurred by the non-Principal participants (**NPPs**) in performing the project works, excluding profit and overheads. The Principal pays the NPPs 100 per cent of these costs, regardless of whether they exceed the TOC and, usually, irrespective of defects and delays.

There are usually a number of agreed principles for the calculation of these including the demarcation between what are direct costs, and what are corporate overheads and the business as usual treatment of a number of specific costs, such as wages and salaries and plant hire. For consultants, there is often an agreed multiplier which is applied to the salaries of fee earners to determine the consultant's direct costs.

## Limb 2 – Fee (to cover normal profit and contribution to overheads)

Before the alliance contract is signed, agreement must be reached as to the percentage fee the NPPs will be entitled to. The fee is intended to cover the profit margin and contribution to overheads which the NPPs would expect to derive for business as usual performance.

The fee may either be calculated on a fixed or variable basis. For constructors, the fixed model is generally used, which is the multiplication of the pre-agreed percentage by that part of the TOC which is attributable to the constructor's work. This avoids the situation where a constructor can earn a greater fee by incurring more direct costs. For designers, the fee is often calculated on the variable model, by applying the agreed percentage to the actual direct costs which the designer incurs. This avoids the designer being reluctant to take on additional scope after the TOC is set because it will not receive an equivalent increase in fee.

## Limb 3 – Gainshare/Painshare

The object of the gainshare/painshare regime is to share with the NPPs the additional benefits or detriment to the Principal as a result of exceptional or sub-standard project outcomes and, by so doing, align the commercial objectives of the NPPs with those of the Principal.

It does this by setting out gainshare entitlements or painshare liabilities of the NPPs by reference to the performance of the project against the Principal's project objectives. The Principal's project objectives almost always include time and cost, and usually include a range of other non-time or cost key result areas (**KRAs**) such as quality, sustainability, aesthetics, functionality, operational efficiency, whole of life costs, safety outcomes, community satisfaction and local industry participation. These are commonly referred to as performance KRAs.

Gainshare for the cost objective is usually the simplest with the NPPs sharing a proportion of cost overruns or underruns against the TOC. Variations on this include varying the percentage for early cost underruns (to minimise the opportunity for the NPPs to make windfall gains by picking low lying fruit) or setting aside part of the cost overruns as a top-up to the pool available for gainshare for successful outcomes in time and performance KRAs.

Time is dealt with on a project specific basis as there is often significantly different value outcomes for early or late completion on different projects. For example, if an asset is needed to link into an existing network and cannot be used before a particular date, there may be little value in early completion but significant loss in late completion.

Outcomes in the performance KRAs are often more difficult to measure. Often a points system is devised to measure the project's performance against these KRAs. There may be clear objective project outcomes that can be measured (such as road ride quality, in the case of a road project) or outcomes may be more subjective such as community satisfaction with the project, which can often be measured by survey.

The total amount payable by each NPP as painshare is usually capped at the NPP's fee entitlement. This way, each NPP effectively puts 'at risk' its profit and contribution to overheads, but not its direct costs. Components of painshare are often capped at lower amounts than the overall cap, although cost overrun painshare is usually capped at the full amount of the fee.

TOC gainshare is usually self-funded in that it is simply a share of cost underruns. The pool available for distribution of schedule and performance gainshare is made up of a seed amount provided by the Principal, sometimes topped up by a proportion of cost underruns.

Importantly, the risk/reward regime is set up to cost or benefit each NPP according to project outcomes, rather than individual contributions of the relevant NPP. This aligns the decision making incentives – a decision that is best for the project will benefit all of the participants ('we all win'), and one that attempts to benefit one participant at the expense of the project will reduce profitability for all participants ('we all lose').

## Sharing of risks

At first, the requirement for the project Principal to pay all the costs incurred by the NPPs – regardless of whether the project comes in over or under the TOC – suggests that the Principal solely bears the risk of increased or unforeseen costs. However, the risk is in fact shared between the Principal and the NPPs, as any cost overruns will cause the actual outturn cost to exceed the TOC, thereby reducing the gainshare payment or increasing the painshare liability, and hence reducing the profit derived by the NPPs. In effect, the at risk component of the NPP's limb 2 fee provides the Principal with a buffer against cost overruns.

This sharing of risks, by which all participants benefit or suffer together, incentivises all of them to prevent and solve problems, rather than seek to allocate blame.

## Potential cost savings for Principals

Alliances can deliver projects at a lower cost and better outcomes than would have been possible under conventional contracts. How is this possible? The potential for cost savings is attributable to the following features of Alliances:

- Firstly, the fixed price under a conventional contract will typically include an amount to cover costs which the NPP may incur if risks which it bears under the contract eventuate (commonly referred to as the 'contingency'). Under a fixed price contract, the Principal pays this contingency amount, regardless of whether the risks which it is intended to cover materialise. Under an Alliance contract, the NPPs are always reimbursed their direct costs, so there is no need to charge the Principal a contingency on account of the risk of incurring unexpected direct costs. Although the TOC will typically include a contingency for business-as-usual unexpected direct costs, the Principal only pays these direct costs if the risk eventuates and the costs are incurred. Further, the total contingency amount included in the TOC can be less than the aggregate of the contingency amounts that each NPP would include in its fixed price under a conventional procurement model, for reasons explained below.

- Secondly, there is a potential for a reduction in the direct costs due to the no blame, no disputes clause. This clause is discussed in more detail below, but essentially the no blame, no dispute clause allows the participants to innovate and take risks in the pursuit of cost savings and enhanced project performance without fear of legal claims if they fail. This no blame culture, coupled with each NPP's entitlement to share cost savings under the gainshare regime, should result in increased innovation and resultant cost savings which would simply not be achievable in a traditional, adversarial contracting environment.
- Thirdly, the collective sharing of all project risks, together with the no blame regime, creates an environment which facilitates good risk management practices. Everyone can talk openly without the need to protect their respective legal positions. In this environment, risks are more likely to be identified, and appropriate strategies put in place to mitigate and manage them. As a consequence, the financial impact of risks which do eventuate are likely to be less. This may (or may not) result in a lower outturn cost for the Principal depending on the following: Whether such risks would have been allocated to a NPP under a conventional contract; the additional payments the Principal would have been required to make to the Contractor under a traditional contract as a result of the risk (or the additional internal costs the Principal would incur in defending claims arising from the risk); and the contingency amount which the Contractor would have included in its lump sum price on account of the risk.

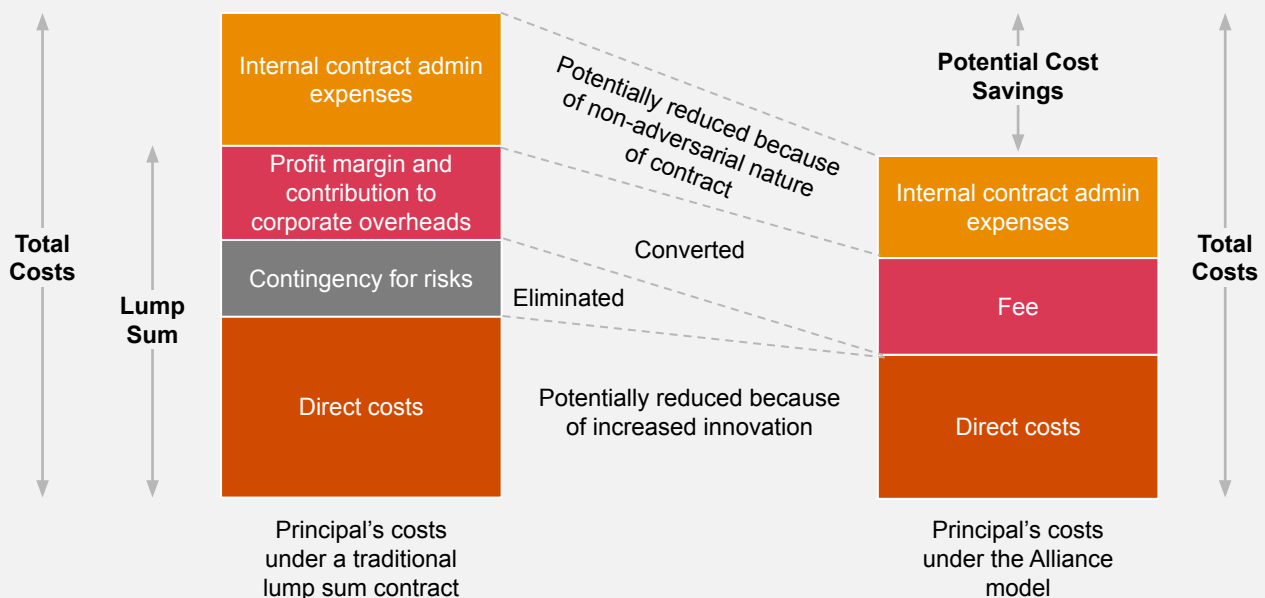


Diagram not to scale.



- Fourthly, the Principal's internal contract administration expenses may be less on account of the non-adversarial nature of the relationship which reduces the resources required for managing and defending claims and disputes. However, alliances contracts typically involve higher tender and contract establishment expenses, which may outweigh these cost savings.
- Fifthly, if there are variations to the scope of the project (particularly variations which would not justify an adjustment to TOC or performance targets), the cost of such variations is likely to be less under an alliances contract than under a conventional infrastructure contract.
- Finally, because the liability of the NPPs to the Principal is capped at loss of its fee, the Principal may consider that the fee should be set at a level lower than the amount of profit and contribution to overhead. That is, a level lower than which the Contractor would expect to receive under a traditional lump sum contract where the risks borne by the Contractor are much greater.

### **No guarantee of a lower project cost**

Although there is potential for the Principal to derive cost savings, there is no guarantee that the adoption of alliances will result in the delivery of the project at a lower cost than would have been achievable under a conventional procurement approach. Indeed, given that the Principal is obliged to pay all of the direct costs incurred by the NPPs, the Principal's cost exposure is potentially unlimited (subject to its right to terminate the contract). It is for this reason that the adoption of alliances by the Principal can be said to require a 'leap of faith' on the part of the Principal that the potential efficiencies available under an alliances model will be realised and result in a lower outturn cost or better project performance.

### **Principal pays for mistakes of NPPs**

Compounding the above issue is the fact that under an alliances contract, the Principal is obliged to pay the costs incurred by the NPPs in redoing work which they fail to do properly the first time. Whilst such additional costs will be at the expense of each NPP's fee and gainshare entitlement, the direct costs of the NPPs are guaranteed. This is a feature of the alliances model which some Principals have found to be a difficult pill to swallow and which has caused them to explore some of the variants to the no blame regime discussed below.

### **Need for care in structuring gainshare/painshare regime**

In structuring the gainshare/painshare regime, it is important to try to avoid a situation in which poor performance against any single KRA will wipe out the entire fee; otherwise, having fallen behind in one area, the NPPs may have no financial motivation to achieve any of the Principal's other project objectives. Of course, even in these circumstances, the NPPs would not be free to 'walk away' from the project, as to do so would be a wilful default (discussed below) to which liability would attach.

### **No blame, no disputes – but consider the ramifications**

Under the no blame, no disputes clause found in the full alliances model, each participant (including the project Principal) agrees that it will have no legal claims against any of the other participants, except in the case of narrowly defined wilful default.

This creates a commercial framework in which there is no point in seeking to allocate blame for problems. Rather, the commercial interests of each participant are best served by helping to solve the problem in a way that maximises the performance of the project against the KRAs.

The no blame, no disputes clause also encourages the participants to come out of their comfort zone, to take risks and to accept stretch targets in the pursuit of extraordinary results, without fear of legal claims if they fail.

However, the ramifications when things go wrong can be far reaching.

### **No blame may mean no claim and no remedy**

For example, because the entitlement of each NPP to its fee and potential gainshare payment depends on the performance of the other participants, if any one of them fails to perform adequately then all of them will suffer – but none of them will have any claims against the non-performing participant.

Furthermore, the inclusion of this clause also means that the Principal will have no remedy against any NPP for losses suffered by the Principal as a result of the negligence, or inefficient or defective work practices, of the NPP.

Whilst the no blame, no disputes clause applies to both the Principal and the NPPs, it generally involves a greater concession on the part of the Principal given that on many alliances projects it is the NPPs that carry out most of the work, with the Principal's main obligation being that of payment (a breach of which is usually defined to constitute a wilful default).

### **Difficulties with traditional insurance policies**

Issues may also arise under typical insurance policies as a result of the no blame, no disputes regime. Consider the example of standard material damage policies: typically when an insurer pays a claim, it has a right of subrogation such that it can step into the shoes of the insured party and seek recovery of that part of the claim that came about as a result of the negligence of another participant. However, because of the no blame, no disputes clause, a participant that suffers loss will have no legal recourse against the participant causing that loss.

There is one school of thought that the result may be that the insurer is entitled to reduce the claim payment to the insured participant to the extent that the insurer has lost its expected right of recourse against the negligent participant. However, this can be readily overcome by requiring the insurer to confirm that the material damage policy will respond notwithstanding the no blame regime.

The no blame, no disputes clause can also give rise to problems in relation to design insurance (and other forms of professional indemnity insurance). This is because most insurances available to designers are liability-based insurances under which the insurer will not pay unless the designer is liable. Under a no blame, no dispute clause, the designer (like all participants) will only be liable for wilful default, which most design insurances specifically refuse to cover. As a consequence, it may be that even though loss is suffered by the participants as a result of a design defect, there is no 'trigger' for a claim against the design insurance policy.<sup>1</sup>

Accordingly, if the Principal is to have any comfort in this area, it will require some tailored form of insurance. Insurance products specifically designed to respond to the unique structure of an alliances contract are available. However, these tailored policies tend to be (comparatively) expensive; the exact cost will of course depend on size and complexity of the project, together with the insurer's assessment of the allocation of risk.

### **Collaborative contracting without a no blame, no disputes clause**

Given these ramifications, some Principals have adopted collaborative contract models without the no blame, no disputes clause, or with a no blame, no dispute clause providing for broader exceptions than those allowed for under the definition of wilful default.

Some will argue that the no blame, no disputes concept is an essential ingredient of the alliances approach. Certainly, if the Principal wants to achieve a high level of innovation from the NPPs (which necessarily involves risk taking), then the inclusion of a no blame, no disputes clause will assist in achieving this objective.

However, there does not seem to be any reason why some of the benefits of the alliances model, such as the ability of a carefully structured gainshare/painshare regime to align commercial interests and drive desired behaviour, cannot be obtained (at least in part) without such a clause.

### **Limits of the no blame, no disputes clause**

Even if a no blame, no disputes clause regime is incorporated into the contract structure, it will not have the effect of preventing any and all liability from being incurred by the participants.

<sup>1</sup> Note, however, that this concern only arises in terms of the operation of the insurance as between the participants. As discussed below, a no disputes regime does not prevent liability arising to third parties. Therefore the trigger of legal liability remains appropriate in respect of losses incurred as a result of damage caused to third parties by the professional negligence of alliance participants.

Most obviously, the no blame, no disputes clause only has effect between the participants, and cannot limit any rights which third parties might have to bring a claim against one or more participants arising out of the conduct of a participant. As with any contract, an alliances contract will only bind the parties to it. However, many alliances contracts provide that uninsured liabilities to third parties will be treated as direct costs which the Principal must reimburse.

Even as between the alliances participants, there are some matters for which it is not legally possible to exclude or limit liability. An example of this is liability which a project participant might incur to another project participant under section 18 of the Australian Consumer Law, which prohibits corporations from engaging in misleading or deceptive conduct. Liability under section 18 cannot be excluded or limited by contract. Nor could one participant enforce a promise by another participant to waive any rights to commence proceedings arising out of a contravention of section 18.

### **How is alliancing different to traditional contracting?**

Alliancing is often described as a 'risk embrace' culture under which the parties seek to better manage risks by embracing them (rather than trying to transfer them) and then work together to manage them within a flexible project delivery environment. It is an agreement between two or more entities who undertake to work cooperatively, on the basis of a sharing of project risk and reward, for the purpose of achieving agreed outcomes based on principles of good faith and trust and an open-book approach towards costs.

In contrast, traditional contracting is often described as 'risk transfer' where the parties seek to transfer as much risk as possible to others under a range of separate contracts. Under a traditional contracting arrangement, the Principal and the main Contractor would enter into a master/servant style contract for the performance of the works and the main Contractor would then flow down as many risks as possible by using a series of master/servant style subcontracts.

In traditional contracts this is manifested by:

- the method of calculating payment to the Contractor, such as lump sum contracting
- fixed dates for completion subject to extensions of time
- no payment of costs for defective work and its rectification
- full legal liability, subject to liability caps and exclusions, such as for consequential loss.

## When should alliancing be used?

The drivers for establishing an alliance as the framework for delivery of a project include the:

- ability to deliver the project free from the spectre of liability if the project is late, defective or has cost overruns
- ability to efficiently pool together knowledge, skills and resources from across a number of parties with differing skill sets
- ability to select the best team for delivery of the works and services
- alignment of objectives
- ability to develop the design and construction techniques over time, rather than at the outset of the project.

In summary, alliances can be effective where scale, technical uncertainty or design immaturity make it impractical or unduly expensive to use traditional contracting methods.

Alliances may also be appropriate when there is likely to be a long term relationship. An alliance environment may better equip the parties to deal with inevitable problems that arise over the course of the relationship than a more traditional contract. This is because the parties will have the freedom and ability, and indeed the obligation, to develop proactive solutions to those problems. A more traditional structure may lead to disputes and the breakdown of the relationship.

## When should alliancing not be used?

If a project is straightforward an alliance is probably inappropriate. Similarly, if there is any concern that the parties involved will not be able to adopt an alliance 'mindset', an alliance should not be used because the integration and motivation of the parties will determine the success or failure of the alliance.

## Requirements for a successful alliance

Alliances are successful when:

- all participants allocate adequate resources with the required expertise
- the alliance objectives and benchmarks are carefully set so that they reflect a sensible set of goals and measurement criteria at all levels of management
- the alliance participants understand the operation of the alliance at all levels of management
- the alliance participants act consistently with the alliance values and principles.

Conversely, where all of the above elements are not present, there is a high chance that the alliance will fail.

## Conclusion on alliances

The commercial, bankability, financial, taxation and practical issues must be considered, in their entirety, before any decision is made as to the most appropriate and effective contracting structure for the delivery of a project.

For the reasons outlined in this update, alliancing is a project delivery arrangement which can be considered for complex projects or for long term relationships.





# Collaborative contracting

Conventional procurement models have long been preferred by most project Principals for their simplicity, and for the certainty and risk transfer that they provide to Principals. However, traditional models cannot always be utilised, especially where scope uncertainty prevents the parties from genuinely agreeing key issues in relation to price and time. In those circumstances, the artificial imposition of certainty can lead to project failure and disputes.

It was from a desire to overcome this misalignment of interests that collaborative contracting was developed. The expression embraces a wide and flexible range of approaches to managing the relationship between project Principals and other project participants, based on the recognition that there can be a mutual benefit in a more collaborative and cooperative relationship between them and a more realistic allocation of risks and responsibilities.

## The problems with conventional contracting

### *Scope certainty must be understood*

Conventional delivery systems are based on the assumption that price, time and the allocation of risk can be pre-determined because the things that have to be done by the parties and the context of contractual performance is known at the time of entry into the contract. In other words, there is a high level of scope certainty.

Frequently however, such scope certainty is absent and accordingly that fundamental assumption is made in error. This can lead to price and time overruns, technical failure and claims.

Conversely, if scope uncertainty is recognised, but ignored by the terms of the contract, the Principal might enter into an agreement that has an artificially high price or unduly long programme.

Accordingly, the first task that must always be undertaken is for the parties to understand the level of scope certainty at the date of the contract, the pathway to certainty and the terms that are best suited to that situation.

### *When money goes out the door, love goes out the window*

Conventional procurement models allocate specific project responsibilities and risks to each participant.

Under this arrangement, and variants of it, each project participant has strong financial incentives to perform well the responsibilities that are allocated to it, but is far less invested in how other project participants perform their responsibilities. The project essentially becomes a collection of sub-projects, where each non-Principal participant is rewarded by reference to the performance of the sub-project for which it is responsible, rather than the performance of the entire project.

Indeed, late or poor performance by another participant will typically excuse a project participant from the need to strictly fulfil its own obligations as originally proposed. Accordingly, when things start to go wrong, the financial interests of participants are usually best served by demonstrating that another participant is to blame for the problem, rather than working cooperatively with the other participants to overcome the problem.

### *Fixed prices motivate participants to do the minimum required, even if doing more would result in better project outcomes*

When a project participant is engaged under a conventional fixed price contract, it is financially motivated to minimise the cost of performing its obligations, in order to maximise its profit margin. Accordingly, when the project Principal separately engages the designer and the main Contractor under fixed-price contracts, each of them is financially motivated to do no more than the minimum required of them, even if doing more would reduce the costs incurred by the other, or result in better outcomes for the project Principals.

For instance, having agreed to produce a design for a fixed price, there is little if any incentive for the designer to do extra work to produce a design that will reduce the cost of constructing the asset, or minimise operation and maintenance costs, unless the design brief requires this.

Likewise, if the main Contractor encounters unexpected ground conditions, there is no incentive for the designer to change the design to overcome the unexpected conditions, unless the Principal agrees to pay the additional costs incurred by the designer in adjusting the design. Conversely, if a deficiency in the design is discovered during the construction of the works, there is no incentive for the main Contractor to develop a construction solution that overcomes the deficiency, if doing so will increase its costs without a corresponding increase in the fixed construction price.

If the project Principal wants a project participant to do more than the bare minimum required of it, to overcome a problem and achieve a better outcome for the project, the project Principal will usually have to compensate the participant for the additional costs, to restore the participant's profit margin.

### *No incentive on other participants to contain the cost impacts of changes*

Conventional procurement models provide no incentive for project participants to minimise the cost impacts of changes to the project. Rather, they provide an opportunity for the incumbent project participants to charge 'monopoly' prices for the additional work, as it is usually impractical for the Principal to competitively tender the extra work.

### *Obligations to co-operate in practice*

It's easy for the participants to say they will cooperate and collaborate with one another at the commencement of a project. Indeed, undertakings to cooperate and collaborate can be given contractual force by including them in the contracts.

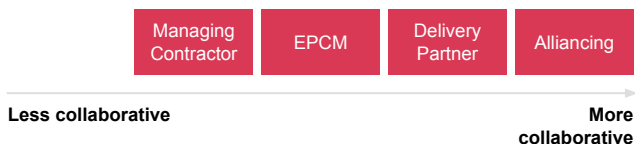
But when a project runs into trouble, the benefits to a participant of blaming others, and putting its own interests ahead of the interests of the project or other participants, can soon outweigh the potential downsides of breaching an obligation to cooperate. It's at this point that the commercial incentives built into conventional contracts render useless commitments by project participants to work cooperatively to jointly solve problems. Commencing legal proceedings to recover losses arising from a breach of an obligation to cooperate is rarely an attractive or effective remedy.

## The collaborative contracting spectrum

Collaborative contracts are contracts that incorporate features that are specifically designed to recognise the level of scope certainty and mitigate the misalignment of commercial incentives associated with conventional fixed price contracts. These features can range from:

- contractual commitments to co-operate and act in good faith
- early warning mechanisms, designed to alert other participants to emerging issues, so that solutions can be developed and agreed before the issue escalates
- early involvement of the main-Contractor and key specialist subcontractors in the design process
- governance arrangements that facilitate collective problem solving and decision making
- payment arrangements that financially motivate each participant to act in a manner that is best for the project, rather than best for the participant
- the agreement of each participant to waive its right to sue any other participant for mistakes, breach or negligence by another participant (except in the case of wilful default).

Collaborative contracts take different forms.



This paper provides an overview of the main collaborative contracting models. A table that summarises how key risks are allocated across the models is included in [Appendix 3](#).

## Managing Contractor

The Managing Contractor is an innovative structure that shares some of its characteristics with 'Design and Construct' (D&C) or EPC contracts and others with the agency relationships and project management roles seen in the construction management models.

The model originated in Australia and has been used extensively by the Australian Department of Defence as well as a variety of private-sector Principals. The Managing Contractor is responsible for the design and construction of the project from feasibility right through to the commissioning stage. The arrangement usually involves the Principal entering into one contract with the managing Contractor, who then subcontracts out all of its design and construction obligations.

This differs from the construction or project manager model where the Principal contracts with a manager to provide project management services only, and then contracts directly with each of the other project participants. Under the Managing Contractor model, the Managing Contractor is legally accountable to the Principal for the delivery of the project, not just for managing its delivery.

The Managing Contractor can be distinguished from a conventional fixed price D&C Contractor in two key aspects: role and risk.

### Role

Although the Managing Contractor accepts legal responsibility for the design and construction of the project, its key role is project management, as it is usually obliged to subcontract out all of its design and construction obligations. The only services carried out by the Managing Contractor itself, using its own in-house resources, are the management and advice services provided throughout the project, and also the provision of on-site preliminaries such as hoarding, plant and sheds.

A key difference between this model and a conventional D&C contract lies in the degree of control that a Principal retains over the selection of subcontractors. While a D&C Contractor has autonomy to appoint subcontractors of its choosing, a Managing Contractor must undertake subcontracting in close consultation with the Principal, who will retain the ultimate authority to approve or reject tenderers. This right is consistent with the Principal's obligation to reimburse the Managing Contractor for costs incurred in the design and construction.

Another important difference between a Managing Contractor and a conventional D&C Contractor is the point in the project development process at which they are engaged by the Principal – the Managing Contractor is appointed much earlier.

The project would normally proceed as follows. First, the Principal invites tenders from potential Contractors for management services and defined common site facilities. Once a successful tenderer has been chosen as Managing Contractor, it will coordinate the feasibility stage of the project, including hiring any consultants required and providing advice to the Principal where needed. If the project does not progress past the feasibility stage, the contract may be terminated.

The next stage is the design phase; this will be carried out by the Managing Contractor, from design brief through to detailed documentation. Throughout this process, the Managing Contractor will consult closely with the Principal, who has the final say as to all decisions made. First, the Managing Contractor will prepare a design brief that must be approved by the Principal. Then, tenders for the design subcontract will be invited. Although the Managing Contractor can recommend a candidate, once again, the final decision is subject to the Principal's approval. When the successful tenderer has completed the design, this must again be approved by the Principal before construction can begin. This procedure differs from a conventional D&C arrangement, under which the Principal minimises its involvement in the design phase to avoid diluting the D&C Contractor's design liability and affecting any warranty for fitness for purpose.

During the construction phase, the Managing Contractor has a variety of responsibilities. These will include:

- advising on the appropriate contract strategy for each package
- managing the tender process and award of packages
- engaging subcontractors to execute the construction work
- programming and timetabling the construction work
- supervising the construction to ensure it accords with design specifications
- managing and administering the subcontracts
- instituting a system of cost control
- managing community relations
- managing industrial relations on the project.

The process of selecting construction subcontractors is performed by the Managing Contractor in close consultation with the Principal. Again, the Principal exercises significant control over the decision through its right to finally approve a nominated candidate; this procedure is identical to that used in the selection of a design subcontractor.

The final stage of the project in which the Managing Contractor is involved is the commissioning phase. During this phase, the Managing Contractor coordinates the handover of the project and ensures any defects that become apparent during the defects liability period are rectified.

## Risk

The other feature distinguishing the Managing Contractor from a D&C Contractor is the risk it bears. The Managing Contractor is exposed to lower risks in terms of both cost and time than a conventional D&C Contractor.

In respect of cost, while a D&C Contractor is normally remunerated on a fixed price basis, a Managing Contractor is generally remunerated on the basis of a combination of a fixed price and reimbursable components. The fixed price component is designed to pay for management services and site facilities, and allows the Contractor to extract a profit. The Principal separately reimburses the Managing Contractor for all amounts paid by the Managing Contractor to subcontractors and consultants. This remuneration arrangement shifts all of the project cost risks onto the Principal, except those for management services and site facilities. The Managing Contractor is only reimbursed for costs that it incurs reasonably. Costs incurred from unauthorised variations, rectification of defects, breaches of contract or wrongful acts by the Managing Contractor that give rise to liability to third parties are usually excluded from the reimbursement regime.

Time-delay risk is often also borne by the Principal. The Managing Contractor will only have a 'soft' time for completion obligation in the sense that it will be required only to use its 'best endeavours' to achieve a target date. Accordingly, a failure to achieve timely completion will not expose the Managing Contractor to liability for liquidated or general damages, so long as it tries its best to achieve the target date. However, because the Managing Contractor is paid a fixed lump sum for its management services, it is clearly in its own commercial interest to achieve completion as early as possible so as to preserve its profit margin. The incentive for timely completion is achieved not through the threat of damages claims but instead through the alignment of commercial interests.

## Benefits

The Managing Contractor model allows for early involvement of the Contractor in the project, with close collaboration throughout. This means that the Principal is able to achieve completion of the project in the manner it desires, using a spread of industry involvement and expertise but without the need for high-level management commitment. The Principal can share some of the risks associated with a major construction project with a Contractor and can achieve maximum flexibility in determining the elements to be included in a project and the design of those elements. At the same time, it provides the Principal with the management expertise of a Contractor organisation to assist and advise upon the design and construction of the project while planning for and remaining within a target time and cost for delivery of the project.



## EPCM

The role of an EPCM Contractor is often very similar to the role of a Managing Contractor, as described above. The EPCM Contractor is typically appointed by the Principal early in the project development process, to coordinate the feasibility stage of the project, before progressing to manage the design/engineering, procurement and construction phases of the project. But as with the Managing Contractor model, the Principal retains control over the design brief, the selection of design/engineering consultants, the scope of each construction contract and the selection of subcontractors and equipment suppliers.

The feature that distinguishes EPCM from the Managing Contractor model, is the lower level of risk that an EPCM Contractor is exposed to in terms of the quality of the work.

Cost and time risk is usually treated similarly to the Managing Contractor model, for example:

- the EPCM Contractor is usually remunerated on the basis of a combination of a fixed price and reimbursable components. The fixed price component usually covers the management services and site facilities, and allows the EPCM Contractor to extract a profit. The Principal separately reimburses the EPCM Contractor for all amounts reasonably incurred to subcontractors and consultants. Again, costs incurred from unauthorised variations, or wrongful acts by the EPCM Contractor that give rise to liability to third parties, are excluded from the reimbursement regime. Sometimes the remuneration model will also include a gainshare/painshare regime, to better align the Contractor commercial interests with those of the Principal, particularly in relation to quality and fitness for purpose
- the EPCM Contractor will only have a 'soft' or 'best endeavours' time obligation, as per a Managing Contractor. Again, because the EPCM Contractor is paid a fixed lump sum for its management services, it is financially motivated to achieve completion as early as possible to preserve its profit margin.

The EPCM model typically departs from the Managing Contractor model in terms of how it allocates the risk of design and construction defects: whereas a Managing Contractor typically accepts responsibility for ensuring that the design is fit for purpose and the works are constructed free of any defects. This is the same as a D&C Contractor. Whereas the EPCM Contractor usually only accepts an obligation to exercise due care and skill in the performance of the design and management services that it provides. In these cases, so long as the EPCM Contractor exercises due care and skill in the performance of these services, it will not be liable to the Principal if the works are not fit for their intended purpose, or are otherwise defective.

However, because the EPCM Contractor typically engages the designer, the construction Contractors and the equipment suppliers as the agents of the Principal (or the Principal engages such parties directly), the Principal will have a contractual remedy against the relevant project participant if it has breached its contractual obligations. That said, it is most unusual for a Principal to obtain a fit for purpose warranty from the designer or a construction Contractor. And any fitness for purpose warranty from an equipment supplier will be limited to the item supplied, and not the entire project.

If the Principal wants an FFP warranty for the entire project, it typically needs to engage a Contractor under a D&C/EPC model or a Managing Contractor model.

Like the Managing Contractor model, EPCM allows for early involvement of the EPCM Contractor in the project, with close collaboration throughout. The Principal can progress the development of the project in the manner it desires, using a spread of industry involvement and expertise but without significant high-level management commitment on its part. The Principal can utilise the management expertise of the EPCM Contractor to assist it to manage some of the risks associated with a major construction project.

## Delivery partner model

The Delivery Partner procurement model is a recent emanation of collaborative contracting that combines elements of the Managing Contractor, IPD and EPCM models. The Delivery Partner model enables a client to supplement its internal project management capabilities by engaging one or more Delivery Partners to assist the client with project planning, programming, design management and construction management services.

By engaging this expertise, the client is able, with the assistance of its Delivery Partners, to adopt a 'sophisticated-client' procurement strategy involving direct engagement of suppliers and subcontractors, as opposed to engaging a major Contractor to manage this process. This can result in significant cost savings and other benefits for the project Principal.

The remuneration regime for the Delivery Partner is similar to the three-limb remuneration model for IPD which includes:

- reimbursement of actual costs
- a fixed fee covering profit and contribution to corporate overheads
- a gainshare or painshare payment.

As with IPD, better than business-as-usual project outcomes (measured against pre-agreed KPIs) will result in a gainshare payment from the Principal to the Delivery Partners, and poor outcomes will result in a painshare payment by the Delivery Partners to the Principal. Again, the maximum potential painshare payment is usually capped at the amount of the limb 2 fee, or a significant portion of it.

Like the Managing Contractor model, the Delivery Partners are precluded from performing design and construction services, which must be competitively tendered (unless the Principal specifically agrees otherwise). The Principal retains control over the appointment of suppliers and subcontractors, similar to the Managing Contractor model. But the Delivery Partners bear less risk in relation to poor performance by subcontractors and suppliers than a Managing Contractor. The Delivery Partner's liability to the Principal for poor performance by subcontractors and suppliers is limited to any reduction in the gainshare payment (or the increase in the painshare payment) that occurs as a result of reduced performance against a KPI. The Principal has the contractual relationship with each subcontractor and supplier, and looks to them directly if they breach their contractual obligations.

The model has been employed successfully in the context of publicly funded infrastructure projects and was first used by the UK government in the construction of infrastructure for the London Olympic Games, where the complexity of the project and time-critical date for completion meant a more traditional delivery model was considered unsuitable. A Delivery Partner enabled the Olympic Delivery Authority (ODA) to acquire the necessary expertise where the ODA did not have the time to find and engage personnel of the required calibre to meet the time requirements. A wide range of infrastructure was required – key Olympic venues such as the velodrome, aquatics centre, media centre and Olympic village, as well as 2km of new sewers and 265km of ducts for new utilities. The project was ultimately a success, being delivered three months early and under budget.

Since then, the Delivery Partner model has received attention in Australia as a potential delivery method for government infrastructure projects and was used to deliver the Woolgoolga to Ballina Pacific Highway Upgrade (W2B). Like the London Olympic venues, the W2B project was a time-critical major project involving the duplication of approximately 155km of the Pacific Highway to a four-lane divided road at an estimated construction cost of AUD\$4.36 billion.

The Delivery Partner model was chosen for the W2B project because it avoided the need for Roads and Maritime Services (RMS) to procure and deliver five separate packages of works sequentially. RMS's business-as-usual procurement models and internal resources would have necessitated the works being divided into five packages, which could be procured and delivered sequentially. It was considered that aggregating the works into a smaller number of larger packages would have resulted in a small field of potential tenderers and sub-optimal competition.

By adopting the Delivery Partner model, RMS expected, with the assistance of its Delivery Partners, to achieve significant time and cost savings through repackaging the works and tendering packages on a trade or activity basis, responding to a logical sequencing of work across the entire project, unconstrained by package boundaries. Essentially, with the assistance of its Delivery Partners, RMS was able to implement the sort of sophisticated-client procurement strategy that a major tier-one Contractor would implement, without having to first engage such a Contractor under a traditional D&C contract and pay the associated risk premium that such a Contractor would build into its fixed contract price for the management of the procurement and integration risks.

The associated downside of this model, of course, is less cost and time certainty at the time the Principal contractually commits to the project. The Principal ultimately bears these risks without the protection that a traditional D&C contract with a tier-one Contractor would provide. This risk is mitigated, however, by the model's IPD style gainshare/painshare regime, which financially motivates the Delivery Partners to help the Principal manage these risks effectively. The margin paid to the Delivery Partners for their services is also less than what would have been charged by a tier-one Contractor for wrapping the delivery risks, on account of the lower level of risk borne by the Delivery Partners.

The Delivery Partner model is in its early years and it remains to be seen whether the model will gain broad acceptance. A more extensive and defensible analysis of the model and its potential uses and shortfalls will only be possible after the model has been more widely used.

That said, it seems well suited to major infrastructure projects where the client wishes to achieve time and cost outcomes that cannot be achieved via traditional procurement models, and is prepared to embrace and manage integration and other risks to achieve these outcomes, with the assistance of capable Delivery Partners.

## Bankability of collaborative contracts

Collaborative contracting is generally considered an unsuitable delivery model if the Principal wishes to raise finance on a project finance basis, for example, where the financiers may only look to the cash flows and assets of the project to secure repayment, and not to the balance sheet of the Principal. Traditionally, project financiers have required the project Principal/borrower to transfer the risk of cost overruns, delays to completion and quality to a creditworthy head Contractor via a conventional fixed price, fixed time contract.

However, it is not impossible to raise project finance for a project delivered under a collaborative contract. To address the greater risks assumed by a project Principal under collaborative contracting models, project financiers may require:

- the equity investors in the special project vehicle/borrower to provide more equity upfront, together with binding commitments to provide additional equity in the event of delays or cost overruns. Completion guarantees from the sponsor equity investors may also be required
- the establishment of separate cost overrun facilities with higher margins
- that the contract itself includes certain features such as a well-structured gainshare/painshare regime, a prescriptive subcontracting regime, and the reserve power and deadlock breaking mechanisms discussed above
- more extensive due diligence in relation to technical issues, project risks and the capabilities of the participants
- tailored insurance policies – see above.

## Which model is best?

There is no 'one size fits all' when it comes to contracting strategies. The model which will best suit a particular project will depend upon a range of factors including the project Principal's objectives, the characteristics of the project and the state of the construction market. What's important is that those who advise on or decide the contracting strategy for a project fully understand the characteristics of the different contracting models, and how they can be tailored to create a model that best meets the project Principal's objectives.

# How to contact us



If you have any questions about this paper, please contact the editor, Damian McNair, Partner, Energy Transition.

PwC Australia has a dedicated Energy Transition business, consisting of a hub of 132 multidisciplinary and highly-skilled experts helping to facilitate Australia's successful transition to a decarbonised economy by 2050. We are helping accelerate our clients through the energy transition and their related ESG priorities as Australia moves to a net zero economy.

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# Appendix 1

## Sample contracting and procurement plan

### 1 Executive summary

This Plan has been prepared by the Principal and contains an overview of the recommended approach for committing and managing major works packages in order to provide a best value, least risk outcome for the Project, through least capital and operational expenditure and considering the Project's Financiers' requirements in respect of time and cost certainty.

The recommended project delivery model is an [insert recommended contracting model and reasons for this recommendation].

### 2 Introduction

#### 2.1 Purpose

This Contracting and Procurement Plan (**Plan**) has been developed to describe the basis for the contracting and procurement plan going forward into the Implementation Phase of the Project.

This Plan has also been developed to provide guidance and support to the Capital Cost Estimate for the Definitive Feasibility Study (**DFS**).

This Plan is based upon certain key principles and assumptions set out in Section 2 and Section 3 of this Plan.

This Plan is an integral part of the Project Execution Plan (**PEP**) and should be read in conjunction with the PEP. This Plan provides a 'base case scenario' for formulating the contracting and procurement plan for the execution phase of the Project. This Plan will therefore be subject to modification particularly where key assumptions made during the DFS change going forward. Key assumptions of this Plan include:

- the perceived corporate structure adopted for operating the Project (refer to the PEP)
- the perceived Project business and contracting risk profile to be adopted (refer to the PEP)
- perceived market conditions during the Implementation Phase assessed at the time of Plan preparation
- all land access, environmental, heritage and other regulatory approvals will be obtained in accordance with the Project schedule
- input from the Principal's Lenders (including Export Credit Agencies) will influence the contract forms (including pricing) and the numbers of the contracts finally proposed for each work package
- the Project will proceed in accordance with the current Project schedule.

#### 2.2 The project

[insert description of project]

#### 2.3 Overview

This Contracting and Procurement Plan considers three phases of works to be implemented. These are:

- **Early Works:** Works to be undertaken with preliminary funding through equity raising prior to the scheduled Project finance approval date.
- **Construction Implementation Phase:** Works undertaken after the Project finance approval date to construct the facility and all associated infrastructure.
- **Ramp Up to Operations Phase:** Initial operations contracts specified to facilitate the commencement of commercial operation by the Principal.

The areas covered by this Plan are:

- Early Works Packages (prior to Project finance approval date)
- Site Construction and Installation Packages
- Plant and Equipment Procurement (including from offshore suppliers and manufacturers)
- Service Contracts
- Purchase Orders
- the Principal's Initial Operations Phase Packages.

#### 2.4 Contract procurement and management procedures

Contract management procedures will be based upon proven delivery and management systems from the selected Contractor, Principal and its other consultants. These procedures will be developed in conjunction with the Principal during the Project Implementation Phase and cover the following functions:

- develop and utilise a suite of short-form model contracts, with their purpose written in general terms and conditions and associated contract documentation
- pre-qualify suitable Contractors, suppliers and consultants for bid lists or sole source negotiation by exception
- competitively tender and award contract packages, or in appropriate circumstances, sole source and negotiate contract packages
- administer contracts after their award, including initial contract obligations, variations, claims management, warranty claims and contract closeouts
- proscribe internal signing authorities and authorisations to commit capital expenditure.

### 3 Key principles

This Plan has been developed based on the following key underlying principles:

- safety, value and cost efficiency are key drivers for the Project
- engineering and design are to be progressed to an advanced stage so that the scopes of works can be defined in sufficient detail to:
  - enable Contractors to provide firm lump sum prices where possible
  - enable the Principal to accurately assess and include overrun contingency in the Capital Cost Estimate for DFS if lump sum pricing is not achievable because the market dictates the schedule of rates payment terms.
- multidiscipline vertical packages will be awarded on a fixed time and cost basis when possible. Awarding such packages will generally contribute to the best value, least risk outcome for the Project, the Principal and the Project's Financiers
- 'best fit' construction companies, suppliers and manufacturers (including international companies and joint ventures) will be engaged when possible, to accord with the size and complexity of the scope of work to be performed
- individual package values will be assessed to avoid or minimise the financial risk to acceptable levels as a single risk exposure to the Project
- a proven and reliable set of project management and delivery systems will be utilised for Project delivery
- quality standards will be established, communicated to Contractors and managed to attain the required quality in all areas
- no 'new' technology will be introduced, and only proven, reliable equipment will be used
- this Plan takes into account Project Financiers' requirements, such as time and cost certainty, the transfer of design, interface and cost overrun risk to Contractors, insurers, end-users, suppliers and Contractors nominated by any Export Credit Agencies providing funding to the Project
- detailed contracting plans will be separately completed for each of the work package summaries in the Contracts and Procurement Strategy Package Plan Matrix (not provided).

### 4 Key assumptions

#### 4.1 [Insert contracting model chosen] Project Delivery Model

The review process to determine the most appropriate delivery model for the Project has taken into account various factors, including:

- the degree of complexity associated with the Project engineering and the level of control and input the Principal wishes to retain for the overall design
- fast-track schedule time constraints are not currently being imposed on project delivery

- the internal experience and capability of the Principal, including the Principal's degree of knowledge of design and construction and the extent and nature of the Principal's resources (including the skills and expertise of the Principal's team)
- the experience and capability of the designers and construction Contractors to be engaged to deliver the Project
- the availability of local and international Contractors
- the size of the Project (in terms of the dollar value and physical complexity)
- the requirements of equity and Lenders.

The expected 'boom' in the number of energy, resources and infrastructure projects to be delivered across Australia and globally increased the pressure to fast-track delivery. Nevertheless, limitations on Principals' resources and rising prices of commodities, materials and labour are redefining how projects are being delivered. **[Insert contracting model]** contracting is only one of several alternative models becoming more widely used.

The key recommendation in this Plan is that the proposed contracting structure for the Project is **[Insert contracting model]** structure, whereby the **[Insert details of contracting model]**.

It is anticipated that the Contractor will be appointed by means of a competitive tender initiated through an expression of interest process. However, there are potential benefits in utilising single-source negotiations with the existing DFS service provider, which should be analysed before the Principal commits expenditure to a tender process for the appointment of the Contractor. These benefits include:

- time and cost savings to the Principal through using the existing DFS services provider to achieve continuity of knowledge and resources
- liabilities for pre-FEED and FEED performed by the existing DFS services provider could be wrapped in **[Insert contracting model]**
- time and cost savings to the Principal through using existing DFS services provider needing less time to validate existing engineering and design
- time and tender costs savings in avoiding committing to a tender process where third party Contractors are unwilling to compete with existing DFS service provider, resulting in a level of engagement inadequate to create a competitive environment.

The apparent risks in pursuing a single-source negotiation process include:

- the Principal may not receive the most competitive terms and price for this major package as it does not create a competitive environment
- the Principal may not be able to assess the best available resources, personnel and systems in the market
- the existing DFS services provider may push for a significant risk premium in its price to take design liability for the entire Project.

Recommendations will be made separately with the Principal's project team after a cost-benefit analysis of the Principal has been completed, using single-source negotiations with the existing DFS service provider for the **[Insert contracting model]**.

## 4.2 Project timing

It is assumed that:

- detail design works funding (through equity raising) will be available to enable the Principal to commence design
- early procurement activity funding (through equity raising) will be available to facilitate the Principal's procurement of long-lead-time items
- early works funding (through equity raising) will be available and the Principal may commence early works on site
- the Principal will give project finance approval
- prior to the Principal's finance approval, an estimated [insert]% of the total value of the works packages will be locked in/awarded (subject to financial close)
- the Principal will appoint the EPCM Contractor to provide tendering and procurement services prior to finance approval
- site construction other than early works will commence.

## 4.3 General risk assumptions

It is assumed that:

- whenever possible, contract packages will be constructed to reduce interfaces between construction Contractors, engineering disciplines and the Principal. This will reduce cost overruns and gaps in liability
- the Principal will transfer construction risks to Contractors where the cost of doing so is not prohibitive
- wherever possible, the engineering and scopes of work for construction packages will contain sufficient details for firm lump sum pricing
- Contractors will be responsible for their own procurement, inspection, expediting, transport and storage of necessary plant, equipment and materials to avoid interface risks. The Principal will minimise its direct procurement of plant, equipment and bulk materials. The Principal will only procure such items for issue to construction Contractors if this is required to maintain the Project schedule, reduce sequencing interface (though stockpiling of critical long-lead material) or would result in a substantial cost saving to the Project
- the Principal will only supply common facilities, utilities and consumables to Contractors where there is a clear cost and/or strategic benefit, otherwise, Contractors are required to be 'self-sufficient'
- local resources will be utilised whenever possible with Indigenous participation levels actively encouraged
- overseas procurement may be utilised if there are local resource constraints, such procurement is necessary to maintain the Project schedule, or it offers the opportunity to significantly reduce Project costs (for example, through Export Credit Agency Funding or cheaper procurement)

- during the Project Implementation Phase, the resources and oil and gas construction market in Australia will be very active, resulting in the Principal having to compete for key Contractors and skilled resources. (Note, many of the Principal's competitors already have strategic relationships with major Contractors and suppliers. The Principal is also competing with project Principals who are able to fund their projects off-balance sheet and therefore are not restricted by the requirements of Lender and commonly offer attractive schedule of rates or cost reimbursable terms to Contractors).

## 4.4 Engineering risk assumptions

It is assumed that:

- engineering design for the core infrastructure, including [insert details], will be sufficiently advanced (approximately [insert]% complete) at the time of tendering major construction packages to allow for firm lump sum pricing
- the Principal will only detail design where necessary for non-core infrastructure construction packages (such as [insert details]), transferring detail design risks to Contractors via novated design and construct packages where the additional cost is considered acceptable and the Principal can provide sufficient detail in respect of its engineering and performance requirements
- preferred equipment suppliers will be specified to Contractors where proven suppliers and equipment specifications are required for particular works packages. These suppliers may have previously negotiated pricing agreements with the Principal
- sufficient geotechnical information will be available and design sufficiently advanced to enable Contractors to provide firm lump sum prices where possible. If lump sum pricing is not achievable because the market dictates the schedule of rates payment terms, the information and design will enable the Principal to accurately assess and include overrun contingency in the Capital Cost Estimate for the DFS
- wherever possible, the Project will utilise proven and tested designs and pre-engineered products (for example, non-process buildings) to reduce design costs and interfaces between design, supply and install components of certain works packages
- for plant and equipment, proven designs will be selected and component suppliers specified only if they provide a practical commonality of spares holdings and minimises spares inventories.

## 4.5 Construction risk assumptions

It is assumed that:

- key contracting companies will be consulted for constructability reviews during the design phase to obtain best value in design, cost and/or schedule
- whenever possible, process facilities contracts will be lump sum vertical multidiscipline packages, where the scope will cover detailed earthworks, concrete foundations, structural, mechanical, piping, electrical and instrumentation

- construction Contractors will be responsible for the establishment of their temporary facilities and services where that Contractor (including subcontractors) has sole use of such facilities (excluding common facilities across the Project which the Principal will provide)
- the Principal will provide and manage construction camps and Principal and construction Contractors will pay a person/day rate for the use of these facilities
- railway infrastructure contracts will be lump sum vertical multidiscipline packages including earthworks, drainage, bridges, track laying and some signalling backbone infrastructure
- earthworks for railway formation and bulk earthworks at the mine sites and port will be undertaken on a predominantly lump sum basis:
  - site preparation works at the mines and the port that also involve large scale bulk earthworks will be contracted as single discipline, 'horizontal' packages of work
  - at the mine sites, the advantages of including site preparation earthworks and drainage works in the scope of the railway Contractor or the mine pre-strip Contractor will be considered to enable the realisation of economies of scale due to the size of equipment fleets that will need to be mobilised to carry out this work
  - to better manage the mass balance of earthworks, it may be advantageous to include the rail loop earthworks to a defined battery limit in the port site preparation scope.
- major machine items such as stackers, reclaimers, ship loaders and train unloaders will be contracted on a design, supply, erect and commission basis using proven technology and suppliers
- non-process buildings such as workshops, warehouses, offices and workforce accommodation will be tendered on a detailed design and erect basis with only floor plans, functional descriptions, level of fit-out, nominated equipment and material and other Principal quality and performance requirements being provided to tenderers. This will maximise the use of standardised, pre-engineered buildings and will minimise indirect (design) costs and interface/gap in liability between designers and Contractors.
- transfer risk to Contractors and insurers when value is represented
- leverage known Contractor expertise
- progress design and scope of work to an advanced stage before tendering, rather than adopting a 'fast track' procurement approach
- ensure an appropriately resourced internal Principal project team and maintain the Contractor for the duration of the Project.

## 5.2 Market conditions

The current market principle remains very strong with sustained high demand for Contractor resources, construction materials and key labour skills across all levels. Whilst the impact of the global economic downturn has tempered construction activity over the past 12-month period, there is now a significant potential for an upturn in market activity. Several major resource and oil and gas projects are now committed or likely to be committed within the Project Implementation Phase. Increased market activity increases the risk of price escalation in both labour and materials and exacerbates the skills shortage.

Since it is difficult to predict market events and direction, the Project must be ready to adjust to a market environment that is rapidly changing and competitive. Therefore, contract packaging and the timing of packages to enter the market need to retain some flexibility in order to respond to market forces. Such flexibility in contract package refinement and contracting approach will assist the Project in responding positively to market forces.

This Project contains long lead time commodities such as the procurement of rail rolling stock, marine piling, stacker/reclaimers and heavy mining equipment where the schedule risk must be managed. The Project must also consider long lead and specialist infrastructure contract performance, such as the marine dredging works.

Market conditions will also influence the final Project content about Australian and foreign labour and/or overseas fabrication and component supply. Depending on the 'tightness' of the labour market, this may necessitate adjustments to the final package plan.

## 5.3 Project delivery systems and procedures

Selected Contractor will provide the project delivery systems and procedures used during the Project Implementation Phase (refer to Section 4 – Proposed Project Delivery Model), and they will be further developed in conjunction with the Principal and the Principal's other consultants.

The systems, procedures and project execution documentation provided by the Contractor will be based on proven systems and specifically tailored to meet the Project requirements, including this Plan. As outlined above, the Principal will develop a suite of Principal Model Contracts in conjunction with the Contractor and the Principal's legal advisors.

The Principal will review and approve the project delivery systems and model contracts recommended by the Principal, the Contractor and the Principal's legal advisors. This shall include reviews to ensure the satisfaction of the Project and the Principal's safety, legal, commercial, environmental, community, engineering, technical, logistical and operational needs.

The Principal will progress Railway rolling stock maintenance workshop and facilitate design to an advanced stage before tendering due to their specialist nature and the need for the Principal to articulate its functional and performance requirements clearly.

## 5 Strategy

### 5.1 Objective

As outlined above, the objective is to obtain the best value, least risk outcome for the Project within risk limits acceptable to the Principal and the Lenders. Strategies to achieve this objective are:

- award consolidated fixed time and cost vertical multidiscipline contract packages wherever possible





## 5.4 Contracting approach

The vertically integrated multidisciplinary packages include civil work, structural steelwork, electrical, instrumentation, all services reticulation and, where appropriate, fit-out and material procurement. Where appropriate, some site preparation earthworks may be structured based on suitably scoped horizontal packages to obtain economies of scale for such works.

The contracting approach seeks to provide the Principal with the benefit of 'price and time certainty' at the time of contract award. It is anticipated that Contractors will build into their contract price an upfront 'construction risk allowance' of between 5% and 10% of the contract price, to provide 'price and time certainty' in terms of a firm lump sum, or design and construct price. However, off-setting this upfront 'fixed price and time certainty premium', it is anticipated that the Project will benefit from:

- a reduction in the Principal's direct construction management and site supervision costs
- a reduction in contractual claims risk due to contract awards being made on advanced design, firm pricing and reduced Principal-Contractor interfaces
- a built-in profit incentive for Contractors to deliver contracts on or ahead of schedule where the Principal's and the Contractor's interests can be aligned through appropriate drafter KPI incentive regimes in the Model Form Contract
- securing limited recourse project financing
- being able to leverage off Contractor's expertise to enhance value-adding opportunities.

The contracting approach provides Contractors with a high degree of freedom, allowing Contractors to control the performance of construction works with minimal Principal intervention. Each construct only and design and construct works package will require the Contractor to assume full construction and schedule risks. Contractors must be able to price these risks reasonably and the Project must be able to assess if the cost to assume these risks are reasonable and practical. The Principal must also be confident that Contractors can manage the construction risk to deliver a quality product on time before awarding contracts. Therefore, packages will only be committed on a lump sum or design and construct basis if cost and overall value can be clearly demonstrated. Individual package plans will be adjusted if necessary to provide a best value, least risk outcome in response to either changing market conditions or commercial and construction risk factors.

The contracting approach requires a substantial up-front effort in the tender and contract negotiation period. Careful preparation of tender and contract documentation, including scope of work, defined battery limits between packages, technical standards and commercial terms, is critical to maximising the benefits of this approach. Therefore, it is recommended that the appointment of the Contractor and the preparation process should both take place as soon as practically possible.

It must be recognised that the use of large, vertically integrated lump sum contracts limits the Principal's ability to vary design, scope or schedule following the award of contracts without incurring the risk of significant additional cost increase. This is also the case with respect to design and construct contracts.

Proposed tenderers for contract and procurement packages will be subject to a comprehensive prequalification process to verify their suitability prior to being invited to tender. Therefore, selected Contractors will have demonstrated a clear understanding of project scope, schedule and capability of delivering scope of work to the relevant quality requirement safely, timely and within budget.

Wherever possible, all contract and procurement packages will be competitively tendered in the marketplace. This will include, where deemed advantageous, requesting tenders from overseas Contractors, fabricators and suppliers. It may be necessary to negotiate contracts from a sole source provider in certain instances. This will be undertaken based on a formal negotiation plan where sole sourcing is required.

The Contracting and Procurement Strategy Package Plan (not provided) will be used as the controlling document for the Project and will be revision controlled.

## 5.5 Commissioning strategy

Generally, except for bulk earthworks packages, all major contract packages will obligate Contractors to undertake precommissioning activities to effect specified 'no-load testing' requirements. Manufacturers and equipment suppliers will also be required where appropriate, to provide installation engineers to assist Contractors undertaking precommissioning activities. Contractors will allow for precommissioning work in their contract pricing sufficient to complete such preparation and make it ready for the Principal to fully commission the works.

Upon the completion of precommissioning activities, but except to the extent that it relates to an EPC or other supply and install works package where the Contractor or supplier is solely responsible for commissioning, Contractors and equipment suppliers will be required to assist the Principal to fully commission the mines and port process plants, mining, marine and rail plant and equipment and all other systems ready for sustained production use by the Principal's Operators. Such commissioning assistance will include achieving full 'load commissioning' and completing performance testing requirements. Contractors and suppliers will provide commissioning assistance on an 'as required basis', with costs being charged on a schedule of rates basis. Contracts will therefore include a schedule of rates to provide such commissioning assistance to the Principal.

## 5.6 Risk mitigation

Project risks will be minimised and/or managed to utilise measures that include:

- award of contracts based on completed design (except for EPC and D&C packages as described above) and sufficient geotechnical information
- formal prequalification processes for tenderer assessment and selection
- use of Model Form Contracts and tender documents for all contract and procurement activities, including tailored general conditions of the contract
- use of pre-prepared and approved Project technical standards
- extensive use of lump sum pricing to minimise the risk of capital expenditure growth
- where appropriate, use of contract mechanisms such as milestone payments, bonus incentives and/or liquidated damages to drive outcomes that are consistent with all of the Principal's time, cost, safety and quality/performance objectives for the Project
- use of comprehensive contract administration procedures
- use of both in-house and third-party expediting and inspection personnel to monitor conformance to specifications and schedule
- use of international design personnel where appropriate
- when appropriate, sourcing materials, equipment and prefabricated modules from offshore (including from Export Credit Agencies)
- requiring Contractors to manage their own productivity risks
- consideration of modularisation of plant and facility components so as to minimise the site based labour content.

Other risks that may affect the Project for which appropriate contingency will be required include:

- Government Work Place Legislation amendments and subsequent industrial relations issues in the resources industry
- increase in fuel prices and/or foreign currency fluctuations which could cause cost increases in delivery of materials and services
- ability to access labour in the event of either labour or skills shortages.

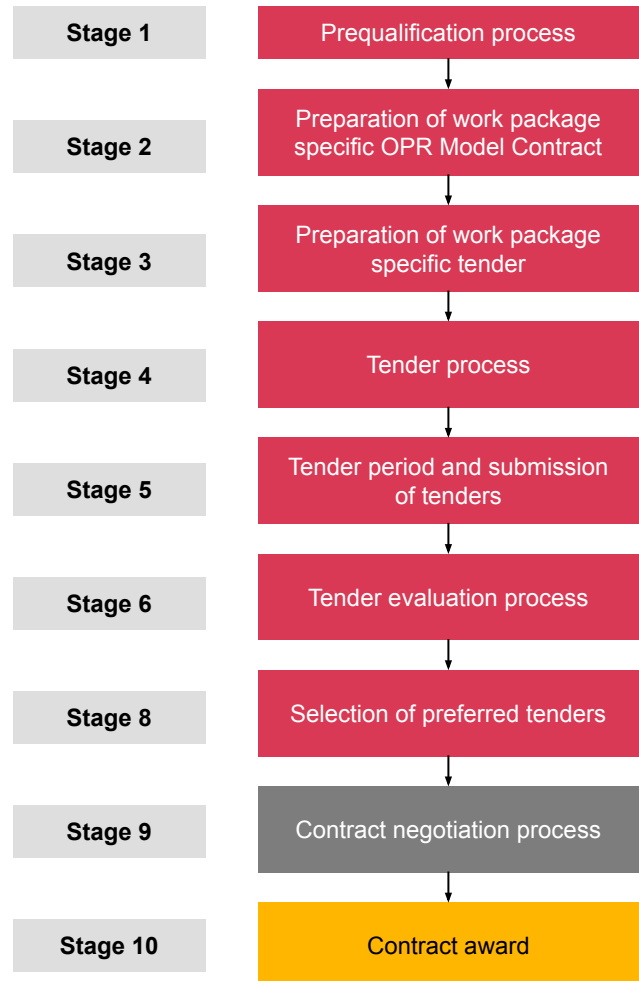
## 6 Project scope included

[insert scope of project]

## 7 Tender process

### 7.1 Tender and award process

In general, competitive tenders will be sought with local Contractors, suppliers and manufacturers for a full, fair and reasonable opportunity. Principal must approve a sole source justification where sole sourcing is proposed by exception for items not listed in this Plan prior to initiating negotiations. The approval must be in accordance with authority levels to be established by the Project.



*Note on the diagram: There are various 'toll gates' in the contracting process that will require the Principal's prior approval before they can proceed to the following stage.*

Prior to formal tenders being called, all proposed tenderers will be formally prequalified by the Project. The prequalification process will ensure that any organisation given the opportunity to submit a formal tender for the Project will be:

- capable of providing a substantive tender
- financially capable of undertaking the proposed scope of work
- will have the resources and technical capability to perform the works.

The prequalification process will ensure that no tenderers are included on approved tender lists that are not capable of meeting the above criteria.

The tender selection process will address the following key areas:

- Health and Safety
- Technical Evaluation
- Contractor Capabilities
- Resources Capabilities Availability
- Schedule Requirements
- Pricing
- Financial Capacity
- Key Personnel
- Environmental Impacts
- Commitment to Indigenous employment opportunities
- Local (Australian) Content.

Compliance will be required with the following developed Project standards:

- Environmental
- Health and Safety
- Industrial Relations
- Cultural Heritage
- Community Relations
- Ethics and Governance.

Where deemed appropriate following initial tender evaluations, tenderers may be shortlisted for further detailed negotiations, or re-pricing.

Specific emphasis during tender evaluations will be placed on Contractor safety records, systems and previous industry experience. In particular, tenderers will be required to demonstrate a thorough understanding of the safety requirements for the Project. Shortlisted tenderers will be required to submit further details of their proposed management process for the safe implementation and management of the contract.

Tenderers will also be required to demonstrate their ability to meet key milestone dates applicable in the contract schedule.

A recommendation for an award addressing all of the above with a capital appropriation request will be raised for approval and signing by the relevant Project personnel, in accordance with levels of authority to be established by the Project.

Prior to contract award, the recommended tenderer will attend site visits to become familiarised with specific site conditions, the scope of work, safety requirements and potential interface issues.

Wherever possible, all contracts will be awarded based on a fully conformed contract document. Notices of Award or other forms of written commitment will only be used by exception where schedule demands on the Project's critical path outweigh this principle. Such commitment will only be after it has been approved in accordance with the levels of authority to be established by the Project.

Following the contract award, a kick-off meeting will be held to discuss key items and information requirements, including contract close out issues.

## **7.2 Confidentiality**

Tenders will be submitted in sealed packages and be delivered to a locked tender box in a secured area by the nominated tender closing date.

Tenders will be opened in accordance with a formal procedure as part of the contract procedures which will be developed for the Project.

The lead engineers will only use unpriced tenders to evaluate technical aspects of the tender submissions.

## **7.3 Sole sourcing policy**

Contracts or supply packages may be sole sourced by exception where:

- there is proven price competitiveness
- it is necessary or significantly advantageous to the Project schedule
- it provides for a commonality of spares throughout the Principal's operations
- commercial terms and conditions are advantageous
- it is for specialist works or Contractors with proprietary equipment or technology are required
- Contractors or suppliers are suitably prequalified.

## **7.4 Customs duty and Australian participation**

The Project contracts and procurement team shall assist in identifying and minimising any exposure to customs duties. The procurement process will maximise Australian participation in accordance with the Australian Industry Participation Plan. This will involve considering existing Australian capabilities to provide local personnel, suppliers, fabricators and Contractors. Australian capabilities will also be given a full, fair and reasonable opportunity to supply equipment, bulk materials, specialised materials and services to the Project. This commitment maximises Australian participation and advances Australian talents, skills and economic regards. Therefore:

- preference will be given to Australian suppliers, fabricators and Contractors where technical, schedule and commercial aspects are equal to or superior to offshore providers
- project design will be based on industry requirements that incorporate Australian standards and engineering practices to ensure maximum participation of Australian maintenance Contractors during the lifetime of the facilities
- the Contracts and Procurement Plan developed for each package will identify Australian content opportunities.

# Appendix 2

## Sample risk register and action plan

Risk matrix						
		Consequences				
		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
Likelihood	5 Almost certain	M	H	H	VH	VH
	4 Likely	M	M	H	H	VH
	3 Possible	L	M	H	H	H
	2 Unlikely	L	L	M	M	H
	1 Rare	L	L	M	M	H



# Consequences

Consequence types								
	Financial (including impacts of delays)	Health and safety	Natural environment	Social/cultural heritage	Community/ reputation/ media	Legal/govt.	Variance from business performance objectives	
Severity level	Catastrophic	>AUD\$50M	Multiple fatalities, or significant irreversible effects	Very serious, long-term environmental impairment of ecosystem functions	Extreme social issues. Catastrophic damage to structures/items of cultural significance		Significant prosecution and fines. Very serious litigation including class action	>30% variance from business objectives/ KPIs
	Major	AUD\$10M – AUD\$50M	Single fatality and/or severe irreversible disability (>30%) to one or more persons	Significant harm with local effect		Serious public or media outcry (international coverage)	Major breach of regulation. Major litigation	10% – 30% variance from business objectives/ KPIs
	Moderate	AUD\$2M – AUD\$10M	Serious injury/disabling injury	Serious medium-term environmental effects	Ongoing serious social issues. Significant damage to structures/items of cultural significance	Significant adverse national media/public/ NGO attention	Serious breach of regulation with investigation or report to authority with the prosecution and/or moderate fine possible	5% – 10% variance from business objectives/ KPIs
	Minor	AUD\$50,000 – AUD\$2M	Minor injury/medical treatment	Moderate, short-term effects but not affecting ecosystem functions	Ongoing social issues. Permanent damage to items of cultural significance	Attention from media and/or heightened concern by the local community, Criticism by NGOs	Minor legal issues, non-compliances and breaches of regulations	2% – 5% variance from business objectives/ KPIs
	Insignificant	<AUD\$50,000	First aid/minor health impact	Minor effects on biological or physical environment	Minor medium-term social impacts on the local population. Mostly repairable	Minor adverse local public or media attention or complaints		<2% variance from business objectives/ KPIs



# Likelihood

	Description	Frequency	Probability
<b>Almost certain</b>	The event will occur on an annual basis	Once a year	>95%
<b>Likely</b>	The event has occurred several times in your career	Once every 1 – 5 years	60% – 95%
<b>Possible</b>	The event might occur once in your career	Once every 5 – 10 years	30% – 60%
<b>Unlikely</b>	The event does occur somewhere from time to time	Once every 10 – 30 years	5% – 30%
<b>Rare</b>	Heard of the event (or something alike) occurring elsewhere	Once every 30 years	<5%



# Risk levels and actions

Actions required	
<b>Risk levels</b>	<b>VH</b> Very high risk – CEO/Board attention needed, action plans and management responsibility specified
	<b>H</b> High risk – senior executive management attention needed, action plans and management responsibility specified
	<b>M</b> Medium risk – manage by specific monitoring or response procedures, with management responsibility specified
	<b>L</b> Low risk – manage by routine procedures, unlikely to require the specific application of resources



# Risk register and action plan: Marketing and offtake workstream

Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment			
1	Significant changes in product quality demands (for example, less flake graphite demanded)														
2	Material default and termination of cornerstone/ foundation customer offtake agreement (for example, take or pay obligations cannot be enforced)														

# Risk register and action plan: Geology, mining, processing and O&M workstream

Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment			
1	The operating and realisation expenditure cost estimates for each of the mining, process, tailings and overhead activities have been categorised into labour, Contractors, storage, power, water, distribution, and overheads included in the DFS are excessive														
3	Significant increase in production costs, for example, concrete, steel, engineering costs, salaries, equipment prices, etc.														
4	Insufficient electrical and/or diesel power for mining and processing														
5	Insufficient water for mining and the processing plants														
6	Lack of availability of competent personnel for plant operation and maintenance														
7	Unsuitable ground conditions for haulage, due to the dust and reduced viability associated with the lack of maintenance and increased traffic. Scarcity of water may hamper water spraying														
8	Errors in the structural model, including the dip and dip direction of faults and discontinuity sets														





Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment			
9	Errors in the geotechnical model based on the RQD data from limited geotechnical logged boreholes, with the remaining parameters subject to many assumptions														
10	The hydrogeological model is unavailable. Errors in the assumptions made of the location of the pre-mining water table and the drawdown, affecting slope stability														
11	Security concerns including the lack of security and theft of diesel and equipment storage areas may lead to production delays														
12	Lack of experienced mechanical fitters onsite to maintain mobile and fixed mining equipment and plant														



# Risk register and action plan: Marketing and offtake workstream

Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment			
1	Significant changes in product quality demands (for example, lower demand for flake graphite)														
2	Material default and termination of cornerstone/ foundation customer offtake agreement (for example, take or pay obligations cannot be enforced)														



# Risk register and action plan: Port access, transport and logistics workstream

Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment			
1	Insufficient marine and landside infrastructure, stockpiling areas and/or operating capability at the port to meet the mine short and mid-term capacity requirements														
2	Insufficient marine and landside infrastructure, stockpiling areas and/or operating capability at the port to meet the mine expansion capacity requirements														
3	Inadequate mine to port road and drainage infrastructure to meet initial and expansions capacity during all seasons														
4	Blockades at the port by workers/ dissatisfied local community														
5	Default by Port Operator under Port Access Agreement (for example, unable to provide capacity)														
6	Port Operator seeks to renegotiate terms of Port Access Agreement once substantial mine capital expenditure has been made														
7	Port Operators at inbound ports refuse to unload product due to the movement of product during shipping														



# Risk register and action plan: Land tenure and approvals workstream

Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment			
1	Expropriation of assets by government once mine infrastructure has been completed – see also Government Stability Workstream														
2	Government seeks to renegotiate more favourable terms of Lease and/or Royalty Agreement once substantial mine capital expenditure has been made – see also Government Stability Workstream														
3	Key project permits and approvals on the project critical path are delayed resulting in significant overall project delays and [INSERT] not being able to meet commitments to off-takers														
4	Breach of environmental approvals during construction or operations results in fines and critical path delays to the overall project Programme and [INSERT] not being able to meet commitments to off-takers														



# Risk register and action plan: Government Stability Workstream

Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment			
1	Change in government results in withdrawal of tenure, mining licences and/or expropriation of assets once mine infrastructure has been completed – see also Tenure and Approvals Workstream														





# Risk register and action plan: Contracting, procurement and Project implementation workstream

Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment				Rank	Risk treatment plan	Risk severity after treatment				Rank	Responsible person	Status of the risk treatment plan		
					Consequence	Likelihood	Risk level before treatment	Consequence			Likelihood	Risk level after treatment							
1	The capital expenditure cost estimates for the mine and associated permanent and temporary infrastructure included in the DFS are exceeded by >30%, resulting in [INSERT] needing to raise significant additional equity and debt.	Financial and Schedule	Post Financial Close – Implementation	1. Project Scope (and all associated infrastructure) upon which DFS cost estimates will be based is currently being defined in parallel with further geology, geotechnical and processing studies 2. DFS Study Scope currently being prepared to include clear cost estimates	4	Major	3	Possible	12	High	3. Final Project Scope (and all associated infrastructure) to be locked down before DFS cost estimates are finalised 4. Cost estimate sign-offs and peer reviews to be completed in line with the final approved DFS Study Scope 5. Confirmation to be provided	4	Major	2	Unlikely	8	Medium		
2	The Lenders' requirements in respect of time and cost certainty and transferring design and construction risk to Contractors, result in a sub-optimal project delivery model under current market conditions and unacceptable risk contingency included in the Lender requirements.	Financial and Schedule	Pre-Financial Close – Study	6. Financial and legal advisors have been engaged to advise on Lender requirements; 7. Contracting and Procurement Plan initiated that will identify how the Lender requirements will be met 8. Market sounding/ informal discussions with Contractors on what	4	Major	3	Possible	12	High	9. Complete the Contracting and Procurement Plan with input from financial advisors on Lender requirements and what is achievable in the current finance market 10. Works packages are currently to be structured (bundled) under an EPC Contract to minimise unacceptable risks contingency	4	Major	2	Unlikely	6	Medium		
3	EPC Contractor does not ultimately demonstrate to [INSERT] or the Lenders during the DFS that it has the capacity or resources to deliver all of the Works Packages, leading to a re-examination of the DFS estimate and delays in achieving estimated deadlines.	Financial and schedule	Pre-Financial Close – Study	11. Market sounding and selection of major Chinese Contractor with a proven track record to participate in DFS study 12. Initial due diligence carried out on balance sheet and capability	4	Major	3	Possible	12	High	13. Further due diligence on EPC Contractor's capability and balance sheet (and that of its parent companies) to be carried out as early as possible in the DFS 14. Ongoing senior management engagement with shortlisted EPC Contractor 15. Market sounding to be carried out	4	Major	2	Unlikely	8	Medium		



Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan				
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment							
4	EPC Contractor will not accept full lump sum/ fixed time, and cost risk for all of the Works Packages resulting in [INSERT] not being able to get accurate or competitive prices for the DFS and/or prices include unacceptable risk contingency.	Financial and Schedule	Pre-Financial Close – Study	16. Contracting and Procurement Plan initiated that will identify the limited scope of work to be let on a SOR basis 17. Market sounding/informal discussions with Contractors on what is achievable in the market 18. Existing consultants and internal advice	4	Major	4	Likely	16	High	19. Complete the Contracting and Procurement Plan 20. Ongoing senior management engagement with shortlisted EPC Contractor 21. Market sounding to be carried out to identify the fallback position and alternative EPC Contractors 22. Seek ongoing advice from existing consultants.	4	Major	2	Unlikely	8	Medium		
5	EPC study Contractor and other Contractors are not prepared to invest in tendering, early works, etc., on an unapproved project, or they refuse to accept commercial conditions associated with the tender validity period, resulting in [INSERT] not getting a suitable level of engagement to create a truly competitive environment.		Pre-Financial Close – Study	23. Market sounding/informal discussions with Contractors on interest in the market 24. [INSERT] has identified and interested EPC Contractor who is participating in the DFS 25. Engineering and design is being progressed to an advanced stage so that the commercial conditions associated with works can be identified with sufficient details, enabling EPC study Contractor and other Contractors to prepare to accept them	3	Moderate	3	Possible	9	High	26. [INSERT] senior management to continue engagement with EPC study Contractor and engage with other major Contractors and suppliers to build strategic relationships as early as possible 27. Utilise PCM Contractor's strategic relationships with Contractor	4	Moderate	2	Unlikely	6	Medium		
6	Inability to prepare work packages with sufficient scope for the DFS estimate, resulting in unacceptable risk contingency being included in the DFS estimate and leading to a re-examination of the estimate to ensure project viability and delays in achieving estimated deadlines.	Financial and schedule	Pre-Financial Close – Study	28. Time has been allocated to progress engineering and design to an advanced stage (rather than the fast-tracked design and procurement model) so that the scope of work can be defined in sufficient detail to enable Contractors to provide firm prices whenever possible	3	Moderate	3	Possible	9	High	Continue to allow sufficient time (as opposed to fast-track delivery) to progress engineering and design to an advanced stage so that the scopes of works and [INSERT] requirements for the packages can be defined in sufficient detail to enable the Contractor to provide firm prices whenever possible	3	Moderate	2	Unlikely	6	Medium		



Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Risk level before treatment	Rank	Risk treatment plan	Risk severity after treatment			Risk level after treatment	Rank	Responsible person	Status of the risk treatment plan		
					Consequence	Likelihood					Consequence	Likelihood							
7	Despite due diligence being carried out on the shortlisted EPC Contractor during the DFS, given the size of the Works Package, the EPC Contractor does not ultimately have the capacity or resources to deliver all of the Works Packages on time, leading to a delay in achieving the estimated deadline.	Financial and Schedule	Post Financial Close – Construction	Refer to actions listed in Risk 3 above.	4	Major	4	Likely	16	High	29. PCM to be engaged to supervise and closely monitor the performance of the EPC Contractor 30. Robust security package to be included in EPC Contract with parent company guarantee and the appropriate amount of performance security in the form of enforceable on-demand assistance (financial or otherwise), enabling the EPC Contractor to deliver all of the Works Packages on time or at a minimal delay	4	Major	2	Unlikely	8	Medium		
8	Not having fully documented EPC Contract scope of work and performance specification at the time of awarding the EPC Contract, leading to uncertainty and [INSERT] paying unacceptable Contractor claims.	Financial and schedule	Post Financial Close – Construction	31. Time has been allocated to progress engineering and design to an advanced stage (rather than the fast-tracked design and procurement model) so that the scope of work can be defined in sufficient detail to enable Contractors to provide firm prices when preparing working packages	3	Moderate	3	Possible	9	High	Allow sufficient time for the tender packages to be advanced and the scope of work and contractual terms for the packages to be defined in sufficient detail to enable Contractors to provide firm prices where possible before going to the market	3	Moderate	2	Unlikely	6	Medium		
9	[INSERT] may not be able to transfer all existing designs prepared in the DFS and responsibility for timely delivery of all designs going forward to the EPC Contract, resulting in gaps in design liability and delays in delivering the design.	Financial and schedule	Post Financial Close – Construction	32. Gap analysis of design risk has been initiated 33. Using proven technology where possible 34. Shortlisted EPC Contractor has been engaged to prepare a concept design for the DFS	3	Moderate	3	Possible	9	High	35. PCM model whereby the PCM Contractor/ other engineering specialists will peer-review critical design prepared by EPC Contractor 36. Starting point in EPC Contract is that EPC Contractor accepts responsibility for all design on a full turnkey basis	3	Moderate	2	Unlikely	6	Medium		



Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment				Rank	Risk treatment plan	Risk severity after treatment				Rank	Responsible person	Status of the risk treatment plan		
					Consequence	Likelihood	Risk level before treatment	Consequence			Likelihood	Risk level after treatment							
10	The interests of [INSERT] and the PCM Contractor are not sufficiently aligned to drive Project outcomes that are consistent with [INSERT] objectives in respect of cost, time, quality, safety, etc.	Financial and Schedule	Post-Financial Close – Construction	37. Incentivised PCM contract model is being proposed 38. [INSERT] existing consultant and internal advice is being sought on the achievable KPI incentive regimes on past projects and in the current market	4	Major	3	Possible	12	High	Allow sufficient time so that [INSERT] requirements and objectives for the PCM contract can be defined in sufficient detail to enable [INSERT] and the PCM Contractor to agree on a target man hour schedule and estimated target cost so the PCM Contractor can achieve all Project outcomes	3	Moderate	2	Unlikely	6	Medium		
11	Inefficiencies and difficulties arising from [INSERT] appointing multiple PCM Contractors, including having different management systems, agreeing on standard form contracts, quality of services, approach to KPIs, etc.	Financial and Schedule	Post-Financial Close – Construction	Single PCM contract model is being proposed.	2	Minor	4	Likely	8	Medium	39. Single PCM Contractor is to be appointed 40. [INSERT] to engage internal resources to match PCM structure and systems	2	Minor	2	Unlikely	4	Low		
12	DFS estimate will include duplication of overheads and contingencies, causing a re-examination of the estimate and delays in achieving a robust DFS estimate by the deadlines.	Schedule	Pre-Financial Close – Study	41. [INSERT] have engaged internal and external technical, legal, commercial and insurance resources 42. External peer reviews are being conducted 43. Engineering and design is being progressed to an advanced stage so that the scope of work and [INSERT] responsibilities are being defined in sufficient detail	2	Minor	3	Possible	6	Medium	44. Further value engineering analysis to be completed 45. Estimated figures are not to be released until the value engineering process is complete 46. Allow sufficient time to complete the value engineering process 47. External peer review is to be completed	2	Minor	2	Unlikely	4	Low		
13	Industrial Relations implications and renegotiation of labour agreements have adverse impacts on contracting and procurement.	Financial and schedule	Post-Financial Close – Construction	[INSERT] considering engaging an external IR consultant with specific regional expertise.	2	Minor	3	Possible	6	Medium	48. IR Strategy document to be prepared 49. Establish project-wide minimum IR requirements 50. Include status of the Contractor's IR agreements and consider renegotiation cycles in the tender evaluation process 51. IR risk to be assumed by Contractors under construction and procurement	2	Minor	2	Unlikely	4	Low		



Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Risk level before treatment	Rank	Risk treatment plan	Risk severity after treatment			Risk level after treatment	Rank	Responsible person	Status of the risk treatment plan		
					Consequence	Likelihood					Consequence	Likelihood							
14	Difficulty procuring suitably priced project-wide insurance to meet Lenders requirements.	Financial	Post Financial Close – Construction	52. [INSERT] have engaged an insurance broker to advise on insurance available in the market	2	Minor	2	Unlikely	4	Low	53. Insurance strategy to be prepared including an assessment of the benefits and risks of [INSERT] contrasting against Contractor procured insurance strategy 54. Gap analysis on Contractor insurances to establish residual project insurance cover required	2	Minor	1	Rare	3	Low		
15	Contractors are not prepared to tender because of the nature of the [INSERT] SPV set up for the project entering into the Works Packages, resulting in [INSERT] not getting a suitable level of engagement to create a truly competitive environment and leading to a price that is not accurate or competitive.	Financial and schedule	Pre-Financial Close – Study	62. Market sounding and selection of major Chinese Contractor with a proven track record to participate in DFS study 53. Initial due diligence carried out on balance sheet and capability	4	Major	3	Possible	12	High	57. Ongoing senior management engagement with shortlisted EPC Contractor 58. Explanation given to EPC Contractor regarding financing arrangements to provide further security about getting paid 59. Consider advance payments for mobilisation and long lead procurement	4	Major	2	Unlikely	12	Medium		
16	Single PCM Contractor is not able to provide adequate resources or suitably experienced personnel.	Financial and schedule	Post Financial Close – Construction	60. [INSERT] existing consultant and internal advice is being sought on what is available in the current market.	4	Major	3	Possible	12	High	61. Market testing and sounding through the EOJ process 62. Resources and key personnel will be key criteria in the EOJ and tender evaluation processes 63. LDs and/or KPI incentive payments for resourcing and key personnel to be incorporated into the PCM contract	4	Major	2	Unlikely	8	Medium		
17	Delay and disruption caused by loss of continuity in progress, knowledge and resource if [INSERT] does not appoint the current lead and other study Contractors during the Implementation Phase.	Financial and Schedule	Post Financial Close – Construction	64. Market sounding and selection of a team of DFS Contractors with a proven track record to participate in DFS study 65. Initial due diligence carried out on balance sheet and capability	4	Major	3	Possible	12	High	66. Further due diligence on EPC Contractor's capability and balance sheet (and that of its parent companies) to be carried out as early as possible in the DFS 67. Ongoing senior management engagement with shortlisted EPC Contractor 68. Market sounding to be carried out	4	Major	2	Unlikely	6	Medium		






Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment				Rank	Risk treatment plan	Risk severity after treatment				Rank	Responsible person	Status of the risk treatment plan		
					Consequence	Likelihood	Risk level before treatment	Consequence			Likelihood	Risk level after treatment							
18	[INSERT] is not able to source adequate resources or suitably experienced personnel.	Financial and Schedule	Post Financial Close – Construction		4	Major	3	Possible	12	High	69. [INSERT] internal resourcing/ employment strategy to be prepared 70. Ongoing market testing of availability of key personnel 71. Engage HR resource to prepare a strategy and locate key personnel.	3	Major	2	Unlikely	6	Medium		
19	EPC Contractor unable to fund start-up working capital on such a large scope of work, resulting in [INSERT] having to fund significant advance payments.	Financial	Post Financial Close – Construction	72. Financial and legal advisors have been engaged to advise on Lender requirements 73. Market sounding/ informal discussions with Contractors on market expectations 74. [INSERT] existing consultants and internal advice is being sought on the required level of start-up working capital	3	Moderate	3	Possible	9	High	75. Complete the Contracting and Procurement Plan with input from financial advisors on Lender requirements and what is achievable in the current finance market (for example, debt funding for the advance payment) 76. Ongoing engagement with shortlisted EPC Contractors	3	Moderate	2	Unlikely	8	Medium		
20	Contractors do not finish on time, causing [INSERT] to incur additional accommodation and overheads associated with [INSERT] workers' accommodation camps.	Financial	Post Financial Close – Construction	77. [INSERT] existing consultants and internal team are analysing potential risk and cost implications.	4	Major	4	Likely	16	High	78. Prepare Accommodation Plan 79. Pass on costs to Contractors in infrastructure contracts through LDs and indemnities 80. Allow contingency in DFS estimate to fund additional costs until recovered from Contractors.	2	Minor	3	Possible	6	Medium		



# Risk register and action plan: Financing workstream

Number	Risk description (event and consequence)	Assessed category	Project phase	Existing controls	Risk severity before treatment			Rank	Risk treatment plan	Risk severity after treatment			Rank	Responsible person	Status of the risk treatment plan
					Consequence	Likelihood	Risk level before treatment			Consequence	Likelihood	Risk level after treatment			
1															
2															
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10															



# Appendix 3

## Overview of collaborative contracting models

	Partnering	D&C Contract with cooperation obligations	Managing Contractor	EPCM	Delivery Partner	IPD
<b>Contract structure</b>	Principal engages partnering Contractor. Partnering Contractor may subcontract work to others	Principal engages D&C Contractor. D&C Contractor may subcontract work to others	Principal engages Managing Contractor. Managing Contractor must subcontract all design and construction work to others (with close Principal control)	Principal engages EPCM Contractor. Principal separately engages design and construction Contractors (or EPCM Contractor engages as agent for Principal)	Principal engages Delivery Partner. Principal separately engages design and construction Contractors (or Delivery Partner engages as agent for Principal)	Principal, designer and key contractors and suppliers enter into a single multi-party agreement
<b>Time</b>	Hard obligation to complete on time	Hard obligation to complete on time	Soft (best endeavours) obligation to complete on time	Soft (best endeavours) obligation to complete on time	Soft (best endeavours) obligation to complete on time, supported by gainshare/painshare payment linked to time KPI	Target date for completion is supported by gainshare/painshare payment linked to time KPI
<b>Cost</b>	Generally fixed price lump sum	Generally fixed price lump sum	Reimbursement of subcontract costs + fixed price fee	Reimbursement of subcontract costs + fixed price fee (sometimes with an incentive payment linked to KPIs)	Reimbursement of direct costs + fixed price fee + gainshare/painshare payment linked to KPIs	Reimbursement of direct costs + fixed price fee + gainshare/painshare payment linked to KPIs
<b>Quality</b>	Partnering Contractor responsible for defects	D&C Contractor responsible for defects	Managing Contractor responsible for defects	Each separate Contractor responsible for their own defects	Each separate Contractor responsible for their own defects (but defects may mean more time + cost-affecting DP gainshare payment)	All participants collectively responsible for defects. The cost and time pain of defect rectification is shared via gainshare/painshare regime
<b>Fit for purpose warranty</b>	Fit for purpose warranty	Fit for purpose warranty	Fit for purpose warranty	Warranty to exercise due care and skill	Warranty to exercise due care and skill	No warranty from participants, but the pain of defects is shared via gainshare/painshare regime
<b>Liability</b>	Traditional liability framework	Traditional liability framework	Traditional liability framework	Traditional liability framework	Traditional liability framework. Painshare of Delivery Partners is usually capped at loss of fee	No blame no disputes. Painshare is usually capped at loss of fee
<b>Self-performance</b>	Partnering Contractor can self-perform construction work	D&C Contractor can self-perform construction work	No self-performance of construction work	No self-performance of construction work	No self-performance of construction work	Participants may self-perform construction work
<b>Project control</b>	Principal controls most project decisions	Principal controls most project decisions	Principal controls most project decisions, including selection of subcontractors	Principal controls most project decisions, including selection of subcontractors	Principal controls most project decisions, including selection of subcontractors	Joint control of all decisions





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