How mining companies procure for projects is changing

In reaction to continued weak commodity prices, mining companies have been pressurised by their boards and investment committees to approve capital more rigorously and apply capital more efficiently. As a result, improving project delivery models has moved to top of the agenda for many mining companies/mine-project-owners and as part of the thought process, existing procurement strategies for capital project delivery - which includes the EPCM model - are currently in the spotlight.

The traditional EPCM contracting model has been thought by the industry to leave mine-project-owners exposed to perceived rising costs and potential risks, and has in instances led them to reconsider how risk is shared and managed with consultants/contractors delivering projects via an EPCM contract.

"While the EPCM delivery model can accommodate design changes more easily, and the associated flexibility has the potential to reduce the cost and to delay impact of these changes (particularly during front-end engineering design), for many of our mining company/project owner clients this model has not been seen to deliver on its potential. In cases where project costs have ballooned, the sentiment has often been that the only beneficiaries were the EPCM consultants/contractors employed on a cost-reimbursable basis. In some instances this is despite scope adjustment or expansion being justified reasons for the cost increases.\"

"Considering the above, now is as good a time as any to ask: where does the future lie for the EPCM contracting model within evolving project procurement strategies?"

Turner & Townsend - as an organisation experienced in the set-up, management and assurance of EPCM contracts, believes that EPCM consultants/contractors still have a major role to play in projects, but that where they sit in the project delivery model is changing.

The emergence of hybrid delivery models and the role of the EPCM contracting model within

"We see more mine-project-owners looking for ‘best of all worlds’ solutions or what can be termed hybrid delivery model options. In needing to deliver more complex programmes, they are asking how they can increase confidence in the project outcome to the level expected in an EPC arrangement, while maintaining access to the skills and benefits that an EPCM consultant/contractor can bring to the project," said Rory Wallace, Mining Director, Turner & Townsend Chile.

Hybrid models can provide an alternative to the traditional delivery models and can be designed
to clearly define areas over which the owner may wish to take control (this is based upon the premise that accountability and risk lie in the hands of the most appropriate party/stakeholder). The attractiveness of a hybrid model as it relates to EPCM contracts has to do with the benefits to the mine-project-owner in terms of its ability to: change the scope and control of the EPCM contract; change the way these contracts are issued and administered; and offer reduced risk exposure, better change management; and minimised cost and delays.

Bruce Clarke, Mining Director, Turner & Townsend Johannesburg adds: “We’ve seen a step change in EPCM contracts as mine-project-owners have looked to consider alternative models. We’ve seen mining company clients of ours look at varied pricing options for EPCM services and we’ve assisted with the strategy and planning of many contracts that have fixed pricing for aspects of engineering and procurement, and a reimbursable pricing structure for the construction management services. My sense is that EPCM contracts will be tendered within tighter parameters to include fixed pricing components, strict mobilisation procedures, and the “right to audit” clauses embedded, as examples.”

“To give a few hybrid examples, we supported a mine-project-owner with the selection of a hybrid type contract model where the EPCM consultant/contractor— with its supply chain and in-house capabilities - covered the engineering and procurement functions, whilst a greater degree of control over commercial and construction management responsibility lay with the mine-project-owner. In a separate instance the EPCM consultant/contractor did not even assume responsibility for the procurement - manufacturing vendors assumed this responsibility. We’ve also supported the selection of other hybrid model types that have included EPCM contracts delivering their full traditional suite of services combined with a series of engineering, EPC, procurement or construction contracts for specific areas of work ... and I expect, in future we will find ourselves at Turner & Townsend (as part of the owner’s team) supervising more of these type of hybrids.” Explains Wainwright.

Wainwright continues: “From these examples I think it is clear to see that delivery models are evolving. I believe that with the market as it is currently, a window of opportunity has opened up for more mine-project-owners to spend time understanding the best procurement strategy for the delivery of their projects - including hybrid models and the potential role of the EPCM consultant/contractor within such models.”

In the past, some mine-project-owners have given insufficient attention to a handful of areas within the procurement strategy planning stage, which can ultimately affect the service delivery from the EPCM consultant/contractor. “In reality, mine-project-owners can’t blame the contract strategy alone if their project was deemed to have failed. Poor scope definition, unrealistic schedule targets and poor management (amongst other factors) have at times also contributed to the poor outcome and are not exclusive to EPCM arrangements. These are some of the areas that they must pay more attention to - if projects are to be delivered to expectations. “As advisors we would like to suggest that mine-project-owners should spend more time applying themselves to the following six areas while defining their procurement strategies - starting with the choice of the right contract.” said Wainwright.

**Six areas that need more consideration while developing procurement strategies and the underlying contracts:**

1. The contracting strategy
2. Responsibilities, reporting, milestones, key performance indicators (KPIs), penalties and incentives
3. Teamwork
4. Change management
5. External comparisons
6. Industry parallels
1. Spend time getting the contracting strategy right from the start

EPCM contracts need to be right the first time round and owners should use the increased time afforded to them in the current market to their advantage.

In reality, mine-project-owners can’t blame the contract strategy alone if their project was deemed to have failed...

Once contracts have been signed it is difficult to remedy their shortcomings. Even before contracts are defined, there is already scope for deliverables to be identified, and it is important to design the contracting strategy for an end outcome rather than a current investment or project approval milestone. “Whichever type of contract a mine-project-owner chooses they can manage it better by carefully planning ahead. Of course in practise conditions change, and so early plans have to be adapted, but if you spend time and money wisely up front to get set up properly you will save considerably more money later,” said Wainwright.

Currently studies are being re-engineered and re-evaluated, and with the additional time available some of it should be spent on clearly defining the EPCM consultant/contractor’s role in further detail before it’s written into the contract. By improving the detail of their scope, the price and schedule will be more predictable and the accuracy of the project baselines will increase.

It is equally important to spend some of this time to analyse and identify project risks early on and to plan to bridge any ‘integration’ gaps upfront. The prevailing market conditions and the market’s appetite to accept particular risk profiles should be assessed and proposals tested before EPCM tenders are issued to the market for pricing. The appropriate limits on liability should also be determined beforehand as this is generally an area of intense negotiation during the tender clarification and finalisation phase - if not communicated to the EPCM consultant/contractor earlier on.

However, getting the contract right is also about recognising inexperience and bringing in the right level of expertise to make sure the contracting strategy is appropriate. In some cases, Turner & Townsend has had no alternative but to recommend termination to contracts that were awarded with little up front consideration to the contracting strategy. However, as Stephen O’Brien, Director Infrastructure Turner & Townsend Johannesburg points out, the bigger risk is that this may not always be possible: "We were called onto a project that was so far behind on performance, that there was no way it could be rescued. Starting again was not an option due to time pressure so we had to adapt it, but it will never perform anywhere above a suboptimal level.

“In another, more successful example, a mining project with extensive railway and port infrastructure took a robust approach to identifying the detail required in their professional services contract, by using a team of in-house and external experts. They did a very thorough level of scoping and decided on a strategy that paid a fixed amount for the bidders’ tender submission as a way to access the right level of expertise and gain their commitment to the bidding process. The bidding was limited to just three companies – compared to many more in a more conventional tender process – and extended deadlines were permitted. This approach helped the prospective EPCM consultants/contractors commit and devote sufficient time and attention to the detail within the bid response that would ultimately form the basis of the contract.”

2. Clarifying responsibilities, reporting, KPIs and key milestones, incentives and penalties... and strong contract management

In some instances the relationship between mine-project-owner and EPCM consultant/contractor can become antagonistic. In such instances, without good contract management (amongst other things), there is little chance the contract will proceed as intended. It is therefore a good idea, when
using an EPCM contract to include checks and balances to keep all parties aligned. One way to do this is to appoint a specialist third party to manage the EPCM consultant/contractor.

Unlike lump sum turnkey EPC contracts (where there is a clear understanding as to the role of mine-project-owner and contractor), roles and responsibilities within EPCM contracts can vary somewhat. Responsibilities and risk must be clearly assigned under the contract, ensuring that each party knows exactly what their responsibilities, deliverables and liabilities are. Milestones, target costs, incentives and penalties need to be considered and arranged to ensure a project is designed in a cost effective manner, but does not prejudice the ultimate success of the operations. In practical terms Turner & Townsend feels adherence to time and commercial targets are the best ways of assuring effective and efficient design. Of course a well-defined engineering scope provides a baseline for the inclusion of these initiatives and is crucial to limit cost overruns on a project.

Mine-project-owners also need to specify ownership of data and the reporting mechanism they want used to enable the interrogation of information produced by the EPCM consultant/contractor. Dashboard reporting does not always provide the ability to drill down into the detail, which is often important to identify and sort out particular issues. Progress reports are needed and should be well defined and agreed within the EPCM terms. Project data is a valuable asset and should be presented as clearly as possible at the earliest possible opportunity. Without the correct level of controls and tools in place, mine-project-owner teams will not have total visibility over costs, issues and risks. “The balance of power within the supply chain is determined by the possession and application of data. Put the correct checks and balances in place and issues can be picked up early on,” said O’Brien.

Clarke agreed that it was important to monitor performance: “At the very least you need robust commercial assurance with checks and balances - earned value analysis helps us measure performance and address problems early. Measurement of this sort and reporting thereof needs to be worked into EPCM contracts. Don’t just use a contract where all the consultant/contractor has to do is prove time was spent and payment was forthcoming. On reimbursable contracts, man hours need to be managed by setting the right target and having a commercial mechanism (such as guaranteed maximum price) in place to dissuade the contractor from claiming too much. In the case of target cost contracts, claims are not always justified and over-runs must be tested against scope change. A robust mobilisation process should also form part of the contract terms and conditions to control movement of project staff. Lastly, I would suggest that key areas of performance management be included on design as well as during procurement and delivery phases of the project - with cost targets, quality guarantees, health and safety specifications and associated incentives and disincentives clearly identified.”

The owner must also be able to make sense of the monitoring. This cannot be a superficial process – for example, if 70 drawings from 100 are produced, one cannot say with certainty that 70% of the drawings are complete and it should not simply be reported as such. It would depend on which of the drawings have been completed, and this requires delving into the detail. The mine-project-owner needs to have a robust project controls framework and a detailed responsibility matrix in place to be able to identify actual earned progress in detail. “In one case, KPIs were in the contract but not applied because the mine-project-owner’s team did not have the expertise to monitor it closely enough, until external supervision was sought. A third party professional services consultant providing commercial support to this team, helped fill in the expertise where they were short staffed and not equipped to perform the required tasks” advises Clarke.
"The balance of power within the supply chain is determined by the possession and application of data. Put the correct checks and balances in place and issues can be picked up early on."

3. Getting teamwork right

If effective, integrated teamwork between mine-project-owner and EPCM consultant/contractor is a key requirement then there needs to be thorough consideration of project governance and delegations to the EPCM consultant/contractor so that the team members’ roles are clear from the outset. If there are changes that can be made to the working culture of the mine-project-owner or EPCM consultant/contractor so that they work more effectively together, these should be considered. The two need to work as a joint team rather than reverting to defence of roles and divesting responsibility.

In one particularly well planned project, before employing the EPCM team, each key member was assessed not only for competency, but also on his or her ability to fit in with the management team. This ensured a good mix in terms of personalities from the start and inevitably improved project performance.

In building the project owner’s team care must also be taken not to step into the EPCM consultant/contractor’s areas of responsibility, and as part of the contracting strategy for the project, boundaries must be defined. “There is a thin line between an appropriate level of management and doing the work of the EPCM consultant/contractor – a mine-project-owner must allow the EPCM consultant/contractor the flexibility to do their job. Sometimes mine-project-owners’ teams get too involved, which can delay the execution of services and ultimately the project. When this happens - particularly when a reimbursable basis contract is used, it adds to cost. Duplication for these reasons need to be avoided,” said Wallace.

Wainwright agreed: “You don’t want to duplicate teams, and if you don’t define the responsibilities well you might end up “man-marking” the EPCM consultant/contractor team, which should not be necessary. If you put the right incentives and reporting in place then the monitoring can be lighter touch, but you must have some supervisory role - especially checking on the commercial indicators.”

4. Establishing robust change management

Unnecessary time-wasting and lack of discipline towards change management can add heavily to costs, no matter the nature of the contract. Disciplined and proactive change management needs to be incorporated into EPCM contracts to encourage a focus on delivery and discourage chasing change events. Changes are inevitable in a project, so managing the effects of changes to produce the least impact is a fundamental measure.

Mine-project-owners should make sure change procedures are clearly identified in the contract. Additional controls such as scope variations, delay / cost notifications, personnel restrictions, incentives and delayed damage clauses can be worked in with performance KPIs and used to limit risk. In the case of controlling personnel changes, once a mine-project-owner is satisfied with a hand-picked team there should be penalty clauses in the contract if key individuals are taken off the project. To minimise changes within the EPCM contracts, fees and fees-at-risk linked to project milestones could also be incorporated into the contract. Controls such as these help mitigate the risk of an overrun, however, careful consideration is required for the wider cost implication of introducing such mechanisms as the risk of not meeting stringent KPIs are likely to be priced into the fee at tender stage.

Net contribution clauses are also among the methods used to keep EPCM consultants/contractors focused on targets. “This way you split the difference in any gain or pain – so the cost of target overruns is shared. A net contribution clause aims to limit the proportion of any loss or damage payable by either the contractor or owner, to its ‘fair share’. At present, net-contribution clauses are
more the exception than the norm in EPCM contracts, although some EPCM contract models - such as the FIDIC Model Services Agreement, do contain basic forms of net contribution clause.” Said Wallace.

5. Benchmarking for norms

When project owners do not compare costs and performance, or only choose to do so against their own projects, there is a reduced understanding of what constitutes “good” performance or real costs on a capital programme. Independent consultants can bring a level of external benchmarking to the adjudication and assessment processes, which will give the visibility needed to target and drive improved performance.

“Robust, independent benchmarking is recommended to indicate how much the EPCM contract should cost as a percentage of the total project cost. Rather than a focus on pure cost of services in relation to capital spend, consideration also needs to be given to productivity and the level of support structures required on engineering and construction disciplines,” said Wallace.

A comprehensive benchmarking study from the outset helps set the baselines and control parameters. It can improve the effectiveness of controls and the quality of procedures – especially if you can compare the price at which the EPCM contract was awarded with the end price. However, according to Wainwright: “Benchmarking is a powerful tool but not an exact science. There are many variables in a project and contracts are seldom the same. It will provide a norm, about averages, but bear in mind that projects have unique features. It is not the final solution, but a step along the road.”

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6. Learning from other sectors

The trends in hybrid delivery models as seen in mining are expanding to areas such as infrastructure. This is partly because infrastructure is often included with large resource projects, and many EPCM consultants/contractors also work across sectors. However, there are lessons from other sectors that mining can draw from.

For example, if distinct speciality expertise is required – as is often the case in oil and gas offshore work - then to avoid the mark-up of a consultant/contractor/sub-contractor relationship, another option is to split the project scope between two or more EPCM consultants/contractors – even though this inevitably increases complexity and requires good integration management, and more likely a bigger management team.

In addition, in the world of property construction, information based management is established and modular or repeat design is frequently applied. Offshore fabrication and relocation to site is also the norm in the oil and gas business. In the mining industry, uptake in this area has lagged - particularly in less developed economies where remoteness and access are factors. It is likely that engineering/design in the mining sector will be challenged more and more to look at repeatable design, innovative ways and technology driven trends from other industries.

More alliances, as seen among oil and gas contractors, should also be considered where for example, in addition to revised EPCM contracts there are equipment vendors now taking more responsibility.
Wainwright concludes: “Now is the time to push ahead with tightening up procurement strategies and controls, including the effective use of EPCM contracts: The market shifts bargaining power – sometimes mine-project-owners need consultants/contractors more, but currently, in many instances it’s the other way round. Those that use the time afforded to them during the current market depression to consider alternative models (and the often neglected areas mentioned) as part of their procurement and contracting strategies, can positively influence business relationships with the engineering and contracting market of which EPCM consultants/contractors will remain a key player.”

About Turner & Townsend

Turner & Townsend is an independent professional services company specialising in programme management, project management, cost management and consulting across the property, infrastructure and natural resources sectors.

With 97 offices in 38 countries, we draw on our extensive global and industry experience to manage risk while maximising value and performance during the construction and operation of our clients’ assets.

For more information please contact
Mark Wainwright
Managing Director
t: +(0) 207 544 4000
e: mark.wainwright@turntown.com

For further information on any of our services visit our website
www.turnerandtownsend.com

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