RISK MANAGEMENT STRATEGIES: CHINESE EPCs

INTRODUCTION

Investors in the Southeast Asian clean energy markets are increasingly turning to Chinese EPCs to deliver their projects. This is predicated on a compelling business case from Chinese EPC firms, which offer low costs and favourable terms and conditions, enabling investors to save money in the CAPEX phase of their developments.

Often the decision to work with a Chinese EPC is made on the assumption that, by transferring project construction risk to a third party, the investor is protecting against cost overruns and delays. However, that is based on a notion that the EPC is actually capable of managing the risk correctly. In MEM's experience, investors frequently ignore how the lower cost Chinese EPC may struggle with project planning, communications and the quality of work, particularly when the Chinese EPC must subcontract to local, non-Chinese contractors. They want to believe they will get a properly managed EPC with the attendant benefits.

So, investors must have awareness that, while Chinese EPC firms may offer them upfront financial incentives, there are both weaknesses and strengths to this commercial model. Where MEM has observed failures in this process is on occasions where the investor has handed the project over to the Chinese EPC and assumed that project or construction risk is therefore taken care of. Unfortunately, this can often be a dangerous assumption.

In the course of our consulting, MEM has been called in as an Owner's Representative on a number of Chinese EPC projects, where delays and quality issues have been caused by poor planning and management.

Once delays occur, whether caused by a lack of planning, issues with procurement, quality issues due to poor management of sub-contractors, or even easily avoidable errors in customs paperwork, the EPC will often reduce scope, in an effort to accelerate work and get back on schedule. But lower quality work will detrimentally affect the lifespan of a project, its energy yield and ultimately the returns to the owner and investors.

In an effort to deliver the project on time and avoid liability for liquidated damages, Chinese EPCs will offer the owner any arguments they can about outstanding problems, and make guarantees to address them after handing over the project that they may not deliver.

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But it is important to have balance. Chinese EPCs are a misunderstood value proposition. The low-cost option they offer can be a compelling business case, but developers should be aware of exactly what they are hiring, and be prepared to spend some of the savings they make up front on mitigating the risks introduced by the decision to go with the EPC.

Working with an awareness of the risks, it is imperative that investors don't neglect the contracting and construction process, otherwise there is a danger of ending up with a project that will cost more in the operational phase and depress returns.

Over the following pages we will provide an overview of risk management and mitigation strategies for the EPC phase for emerging market renewable energy wind projects. We trust you find this guidance of interest, and would welcome any comments you may have.

Aaron Daniels, Managing Director, Modern Energy Management

RECOGNISING THE WEAKNESSES IN THE CHINESE EPC MODEL

It is important to bear in mind that, based on their business model, Chinese EPCs focus on delivering volume of work, rather than quality. And while they are happy in principle to offer certain securities or warranties, it is up to the investor to ensure that these are managed and ultimately enforceable.

Having worked with Chinese EPC contractors (in Mandarin Chinese) for many years, the team at Modern Energy Management recognise that vigilance is the key to maintaining a good relationship with the contractor and ensuring the project runs smoothly.

Investors should, therefore, look to structure a contract that protects themselves. Higher risks are innate to emerging markets, and the working practices of a Chinese EPC can add even more risk to the project. It follows, then, that there is huge value in getting the contract right to manage the EPC contractor, and ultimately the risk properly. With so much at stake for investors, it is worth partnering with an experienced project risk team - one that has experience and a sound understanding of the culture of Chinese EPCs. Such an advisor will be able to confidently represent the owner in tricky contract negotiations with a Chinese EPC, and do so in Mandarin Chinese, knowing the cultural importance of being able to speak to Chinese EPCs in their own language.

Getting the relationship right from the start allows developers and investors to discuss and set expectations with the contractor, rather than making unrealistic assumptions about what can be delivered.

Ultimately, enlisting a suitable Owner's Representative that can demonstrate this expertise will enable effective project management, and allow investors to maximise the potential of the Chinese EPC model.

APPOINTING AN OWNER'S REPRESENTATIVE TO REDUCE RISK

Operational management

A lack of wind energy experience, weak planning and management and a relaxed attitude to risk, means cost overruns and delays on construction projects managed by Chinese EPCs can quickly add up.

The main causes of cost overruns are poor execution and poor quality control by the Chinese EPC. For owners and investors, it is important that these factors are minimised. Chinese project execution teams, however, are accustomed to working in a monopoly market (China) where such delays are of no commercial consequence to the contractor.

It is worth noting here that Chinese EPCs typically do not pass the cost overruns on to the owner, only the delays. That said, when the EPC does experience overruns, they tend to reduce project scope and overall attention to quality. While promises may be made to remedy any outstanding quality issues after project completion, in reality these are highly unlikely to be rectified once the EPC has handed over the project.

It is important therefore to work with the Chinese project management team to gain transparency on the status of the project and to be able to gauge what can be expected of their performance.

Investors who do not have the capacity to directly manage their EPC partner should, therefore, consider the appointment of an experienced owners' representative to verify the skills and operational activity of the EPC.

APPOINTING AN OWNER'S REPRESENTATIVE TO REDUCE RISK

Key areas that an Owners Representative will manage

Skills
While Chinese EPCs may possess lots of experience working on-site in the management of Chinese sub-contractors, many have not worked with foreign sub-contractors previously, and can struggle to develop relationships with them, leading to communications gaps during core phases of project development.

International experience
Chinese EPCs with international business experience are more likely to build relationships with non-Chinese sub-contractors and understand how to manage them better. Additionally, as Chinese project managers working overseas often face visa issues, restrictions in the amount of time they can spend on site limits their ability to build relationships with sub-contractors and often means workers on site are left unsupervised by the EPC.

Language
An Owner's Representative should take the opportunity to test the written and spoken English language skills of the EPC manager as it is a useful indicator of the extent of an EPC manager's ability to communicate effectively.

Implementation of international standards
Chinese EPCs often rely on Chinese Design Institutes, using Chinese standards, but this adds risk. It certainly means projects will not meet international standards of quality, which are typically higher, and it also means the project may not meet local design requirements. There are potential operational risks to the wrong standards being used, but this can also lead to issues when it comes to securing acceptance of the project by the relevant local authorities.

Working practices
Lastly, it is worth bearing in mind that Chinese EPCs are state-owned and, as such, are liable to behave like some state-owned businesses the world over. They will be reluctant to take on responsibility or to own project outcomes; instead, they will look to complete their part of the project and move it out of their area of responsibility as quickly as possible.

Owners should be aware of – and focus on mitigating – all the issues that can potentially arise in the course of a project due to the lack of experience and leadership in the Chinese EPC's team. Working with an experienced Owner's Representative to oversee the project will offer an additional layer of protection.

RISK MITIGATION TOOLS AND STRATEGIES

Bonds & Retention

Bonds are a necessity for any construction project and a powerful risk management tool. But it is important to remember that, above all, they are a risk tool of last resort, and that investors should do all they can to avoid calling on them. Not only will calling a performance or warranty bond lead to a breakdown in the relationship between investor and contractor, as it would damage the contractor's credit worthiness, but the bonds called may not be sufficient to make the owner whole in the event of Chinese EPC mismanagement of the project.

Bonds should be used for what they are – a backstop. Retention of payments and cash are preferred alternatives that offer owners more flexibility and better leverage over contractors. Owners shouldn't expect their technically-adept engineering representative to be able to monitor and deliver on this kind of project management strategy. Instead, they should look to find an Owner's Representative with the skills to ensure the contract is properly managed and enforced appropriately.

By retaining cash, owners can better protect themselves in the event they need to meet the cost of repairs caused by contractor error. Using retained payments also allows the owner to preserve the value of the bond, and therefore the relationship with the contractor. Interrupting the contractor's short-term cash flow by retaining payments provides owners with leverage over the Chinese EPC – and thus means they can ensure that what needs to be made good is made good to their satisfaction and the satisfaction of the project management team. Retention also nullifies any arguments from the EPC about being willing to complete a punch list once payment is received; a promise that is more often made than is kept.

Lastly, the owner is able to meet repair costs down to the dollar with retained payments, which they can't do with bonds. With all the risks it would pose to the relationship with the contractor, there is no sense in calling in a US$10m bond for a US$250,000 defect.

Warranties

The EPC will look to structure back to back warranties with the OEM and BOP subcontractors, working on the basis that if there were a claim from the owner, then the EPC's warranty provisions would largely pass through to either their OEM or BOP subcontractors. While Chinese EPC contractors are by nature risk tolerant, they may be limited in initial contract warranty provisions if they aren't getting market standard commercial offerings from their sub-suppliers. Typically, OEMs will seek to limit their own risk exposure by taking advantage of Chinese EPC's lack of understanding of typical market terms.

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An experienced Owner's Representative team will also be aware of the possible issues that might arise in the manufacture, transportation and installation of wind turbine generators, and be able to support the EPC in negotiations with the supplier – including securing back-to-back provisions with sub-contractors, to the benefit of the EPC and the owner. A good Owner's Representative should collaborate with the EPC at this stage to support in contracting and procurement agreements - areas where EPCs are traditionally weak.

This warranty negotiation process can be key to building the necessary level of trust between the Owner's Representative and the Chinese EPC. Experience suggests that being able to conduct these negotiations in the EPC's native Mandarin is an effective means of building that trust quickly – trust that will become all the more important when the Owner's Representative team moves on site to oversee the installation or implementation of warranted products and services.

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Control Provisions

Financial controls are as important as site access. Stipulating that the Owner's Representative should have oversight on EPC invoices gives the Owner's Representative the power to properly manage the EPC, by making them the gatekeeper of cash flow. Linking payment to performance prevents the EPC from making changes to the plan, or burying defects and quality issues, sometimes literally, because payments will only be made when work has been verified. Buried works cannot be verified.

Representing the project owner, MEM has previously worked on projects directly with sub-contractors to resolve problems, whilst the EPC contractor representatives were nowhere to be found. It is therefore essential that investors and their Owner's Representatives structure the EPC contract such that they can monitor exactly what the contractor is doing, and intervene where necessary.

The contract should contain mechanisms that push the EPC to be transparent. By outlining schedules for deliverables and communications, as well as owner acceptance certificates for milestone billings, owners or their appointed representatives can maintain control over the progress of works. These mechanisms help to mitigate delays that might result from an unsupervised EPC that defaults in order to focus solely on cash flow, rather than sub-contractor supervision and project execution.

Chinese EPCs may even go so far as to implement unsanctioned changes to the scope of work (i.e. reducing scope of work or changing technical specifications) if the owner does not properly manage them. Even though a contract may explicitly require IEC standards, EPCs working in Southeast Asia may, for instance, instead decide to adopt Chinese standards for work done. Without presence on site, an Owner's Representative wouldn't be able to verify the activity of the EPC, and ensure management and construction standards are maintained. Such site access for the Owner's Representative, essential to the project being completed on time and revenue ready, should be linked to the issuing of acceptance certificates, and subsequently, to milestone payments.

Linking payment to the verification of milestones incentivises the EPC to allow Owner's Representative's access to the site, reinforcing the behaviours agreed in the contract.

When it comes to project completion and handover, as in all construction projects, there will be a 'punch list' – whereby any core functions of the project not conforming to contract specification in scope or quality will have to be addressed. But experience makes it clear that owners should not take over the project until the punch list has been completed, and that they should retain cash until all items have been executed to their satisfaction. Unless cash is retained it is highly likely that the EPC will become very unresponsive to completing the punch list after they receive the final payment.

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Insurance

Investors need to recognise that there is a difference between insuring themselves and insuring the work of the EPC. Too often, investors want to push responsibility for buying project insurance onto the contractor, in the mistaken belief that it is the contractor's work that is being insured.

In reality, however, owners need to cover themselves against potential risks, as well as ensuring the EPC scope of work is properly insured, and should consider procuring insurance across the project to ensure its comprehensive completion.

In the purchasing of construction insurance, owners should seek to protect themselves against: marine risks; construction risks; delays in start-up; and third party liability. An EPC contractor's insurance should be limited to cover worker compensation, equipment and vehicles and professional indemnity

By procuring all the project insurance themselves, owners can avoid the trap of a claim falling between two areas of cover. Consider the following two examples. First, a turbine component is damaged during the construction process, but it is disputed as to whether the incident occurred during the unloading of equipment under the Marine All Risks (MAR) cover of the contractor, or the Construction All Risks (CAR) cover of the owner. Under this scenario both insurance providers may refuse the claim, leaving the investor vulnerable.

Secondly, if there is to be a payment under Delay in Start-Up (DSU) cover, it must be linked to a physical loss or damage under a construction policy. If the owner leaves it to the EPC to purchase the construction policy, however, there is a real risk that the EPC would take a cost-averse approach to procuring construction cover. Insufficient construction cover could create gaps that would put the DSU at risk.

Lastly, Professional Indemnity (PI) should be contemplated as a risk mitigation strategy when contemplating Chinese EPCs. PI insurance protects owners against the pure financial losses resulting from poor project management, engineering and professional services provided by the contractor.

For example, if a foundation fails because of a design defect, the normal project insurances will cover the cost of replacing and/or repairing the foundation and any resultant damage to the wind turbine. However, if the defect is found to be serial, affecting all of

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the foundations, but, to date, no other foundations have failed, it is likely that the insurer would exclude the now known defect of the as yet undamaged foundations from their cover. Insurers provide cover for unknown risks, but once this risk is known, as it will likely be, insurers will likely pass this risk back to the investor.

But, by having PI cover in place, a project owner will be protected from the financial losses experienced in the above example when repairing the serial defect.

These gaps in cover that can arise from leaving insurance to an EPC contractor demonstrate why these protections need to be procured by the owner, and not the EPC.

APPOINTING AN OWNERS' REPRESENTATIVE FOR CONTRACT MANAGEMENT DURING CONSTRUCTION

The value of a strong contract can only be realised if the contract is properly managed. This means having an owners' representative in place to ensure the powers and provisions in the contract are enacted and enforced when necessary. Being willing and able to pursue commercial claims under the contract in the right manner is essential to fully utilising the protections you have built into it.

Active contract management

In the event the project management team identify an issue and raise it with the contractor, they need to make sure they follow the right processes that ensure the contracto r cannot later argue other facts that might fit the case. In construction, the contact must be actively monitored and managed contemporaneously by the Owner's Representative.

For instance, during one of their regular visits to the site, the Owner's Representative team may identify issues or faults with a component supplied by the EPC. Rightly, the Owner's Representative will ask for these components to be replaced. Whilst on site the Owner's Representative can raise the issue and ask for it to be remedied, but it is through the application of the contract that they will actually secure the changes required, or seek financial remedies from the EPC contractor if they are not.

A Chinese EPC will resist making restitution, and typically, not seeing the need, a Chinese EPC may refuse to replace inferior parts. If this happens, the owner, working with their Owner's Representative, would need to start a commercial claim (under the contract) to support withholding retention from payment. This would allow the owner to procure services from a 3rd party to remedy the quality defect, and offset this cost with EPC funds.

Making this claim and validly withholding payment from the EPC contractor (i.e. payment retention) requires a combination of notices and documentation supporting the financial claim. If, in a worst-case scenario, the claim goes to arbitration, the owner will need a proper paper trail to support their decision to start the process. Each piece of the paper trail needs to be linked to, and justified by, a clause in the contract, helping to improve the likelihood of a favourable outcome, not only in arbitration, but also at the project site.

APPOINTING AN OWNERS' REPRESENTATIVE FOR CONTRACT MANAGEMENT DURING CONSTRUCTION

Owner acceptance certificates are one of the key tools Owner's Representatives have for ensuring contracts are held accountable for time and cost overruns due to quality issues. These certificates are evidence that owners are satisfied with the work done by the EPC. However, it is often the case that these are issued provisionally. Chinese EPCs may be happy with this arrangement, in which case it is up to the Owner's Representative team to ensure that the deficiencies, which meant approval was only provisional, are remedied. Unless the deficiencies are corrected, the EPC will be able to deflect responsibility and make excuses for overrunning work.

Dealing with the Chinese EPC, an Owner's Representative can face many situations that provide room for the EPC to obfuscate the cause of delay. Variation orders, commercial claims, and force majeure issues – all of these can, if not managed and communicated properly, play out in a way that allows the Chinese EPC to avoid responsibility and accountability for project time and cost overruns. When working with a Chinese EPC, owners should bear these issues in mind, and use some of the savings they have made on the EPC contract fee to mitigate the increased risk of working with a Chinese EPC, by employing an Owner's Representative to manage these risks and protect the owner from project delays and the possibility of reduced returns.

Working with MEM

As highlighted in our opening summary, working with Chinese EPCs has a value proposition in its own right for clean energy projects in the Asian emerging markets. But if pursuing such a relationship, investors should be fully aware of the nature of the risk profile, and consider appropriate mitigation measures.

We trust, therefore, you have found this guide helpful, and if you would like any further information on the content of this report, or would like to provide any feedback, then please feel free to contact me directly at **Aaron@modernenergy.co.th**

ABOUT MODERN ENERGY MANAGEMENT

Modern Energy Management (MEM) delivers project lifecycle certainty to renewable energy financiers, developers, operators and investors working in rapidly expanding emerging markets. It's remit is to source, develop, build and manage clean energy projects throughout the emerging markets.

The firm's team of project managers, consultants and engineers enable financiers and investors to successfully develop, construct and deliver complex, profitable projects in remote, rapidly expanding international markets.

MEM established its corporate offices in Thailand in 2013, and has since registered in Singapore to accommodate its growing international project pipeline. MEM is currently managing wind, solar and a number of other renewable energy initiatives in the developing markets of Southeast and Central Asia, Latin America and Africa.

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