

Chapter 21B
MEGA PROJECT CONSTRUCTION CONTRACTS:
AN OWNER'S PERSPECTIVE

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§ 21B.01 Introduction^{*1}

An owner, developer, or even project manager (Owner, for simplicity's sake) with a billion-dollar budget should, from its viewpoint, be able to get what it wants. Alas, it is not always so. The trinity of choices between time, cost, and quality lead mega project Owners to attempt to balance

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¹This chapter is written from the negotiating viewpoint of the project owner.

the possible combinations of rigorous quality control, tight completion schedule, and lowest initial and long-term outlay for their desired facility. The well-advised Owner will consider what contractual arrangement best suits the mega project; two major choices are (1) between the EPC (engineering, procurement, and construction) and the EPCM (engineering, procurement, and construction management) contract models, and (2) between the lump-sum, turnkey, and cost-reimbursable (with or without spending caps) approaches. Owners can and do mix and match these basic types of contracts, but generally they pair EPC with lump sum, and EPCM with cost reimbursable. Acknowledging that every generalization begets an exception and that agreements are negotiated with an almost infinite number of variations, significant differences and similarities may still be drawn between EPC and EPCM agreements, particularly with the types of payment (lump sum or cost reimbursable) in mind.

Experienced or properly advised Owners know that contracts should clearly allocate the major risks anticipated in a project. With enough experience or the right advice, such Owners will pair the risks (of cost overrun, late completion, and performance shortfalls or sub-par operations, for instance) with rewards commensurate with the particular dangers and with the ability of the party in question to effectively manage the risk. No form of contract suits all contingencies, much less all projects. However, understanding what an EPC or EPCM agreement can do for the Owner and the project will enable the Owner to better match its goals with the contract employed to reach them.

This chapter examines contractual means to allocate risks, but Owners may always employ methods outside an EPC or EPCM agreement to cover the contingencies arising in a mega project. For example, the parties may fall back on the allocation of risk contained in the laws of the project's site. Many major responsibilities are imposed by law, and unless they are shifted (such as made joint), they provide a framework for risk allocation on any project. Indemnity for one's actions, responsibility for site conditions or for changes to real property, and safety for project workers, among many subjects, are covered by the laws of most jurisdictions. Owners may elect to rely upon the mandated responsibilities inherent in the law of the site.

Before comparing and contrasting the EPC and EPCM forms, it is important to note that the risks typically allocated in a public works project (where lump-sum agreements often are required) are addressed differently by many private (and some very deep-pocketed public) Owners. Mega projects for industrial and even commercial Owners now are approached through cost-reimbursement contracts more often than not. Public Owners still feel more at home with the certainty of a fixed-

price agreement. Perhaps the entrepreneurial spirit of private Owners or the aversion of many large public Owners to public criticism for delay and cost overruns explains the polarization of using these two payment methodologies.

§ 21B.02 Overview of EPC Compared to EPCM

In many instances, the EPC agreement functions as a turnkey contract. Whatever the scope of the work, be it an entire refinery or a small addition to an existing plant, the Contractor² will design the facility, build the structures from foundation to trim, buy and install the equipment, perform all remaining construction, test all major and minor equipment and operations, train the operators, and hand over the complete drawings and operations manuals. Of course, Owners may create many variations on this theme, such as ordering long-lead time equipment for the EPC Contractor. However, the core of the EPC agreement is that the same entity is responsible for all of the operations from creation to certification of completion. Of course, that entity subcontracts out vast amounts of the work, and it certainly does not manufacture the equipment or create the materials. It may hire almost all of the labor for the project. Nonetheless, the EPC Contractor performs all the work, directly or indirectly, and represents to the Owner a single point of responsibility.

The EPCM agreement departs from the EPC contract by removing the concept of sole responsibility for the project and substituting a single contractor (the Engineer) to design the project and to endeavor to cause others (suppliers and contractors) to equip and construct it. Bearing in mind the many variations possible with such an agreement, the essence of an EPCM is service (engineering the work and administering its construction by others) rather than providing, through direct efforts, a finished project. Owners may contract directly with the EPCM suppliers and contractors, or may have the Engineer do so on their behalf. Owners may proceed with a completely cost-reimbursable project, designed and administered by the EPCM Engineer, or they may transfer all of the contracts to the EPCM Engineer and even obtain a maximum project cost, coupled with incentives and variable payments for services, at some point after the work has begun. However, the EPCM agreement still is not an EPC contract, despite some similarities. The Engineer still curtails its project risk, in keeping with providing service and not a complete project.

²“Contractor,” for the purposes of this chapter, refers to the entity with whom the Owner contracts under the EPC agreement to perform the design and/or engineering services and the construction work, and to procure all necessary equipment, materials, consumables, and supplies.

The EPCM agreement can do many things, but it is most readily adapted to a project in which the Owner wants a representative of its interests and an entity to take the lead in designing the project. As may be apparent, an Owner wishing a greater role in procuring the equipment, in selecting contractors for distinct parts of the work, and in retaining more project control should consider the EPCM approach. Because the EPCM Engineer acts on behalf of the Owner and directly involves the Owner in making major decisions throughout the project, the service nature of EPCM comes through. Such service requires an equal measure of responsibility and responsiveness from the Owner, to provide the strategic decisions (on matters regarding major equipment, crucial contractors, and proactive interaction with governing authorities, for example).

By directly involving itself, the Owner in the EPCM agreement tends to favor cost-reimbursable payments, perhaps with incentives and restrictions, to avoid paying the Engineer for risks that the Owner has retained. For example, by breaking a project into phases (such as excavation, foundation, structure, key equipment, and key subcontractors), an Owner may hope to stimulate competition for smaller-scale contracts and to eliminate some markups on the work. The Owner thus affirmatively emphasizes cost savings over possible delays in the schedule by subdividing what otherwise would be a unified project.

Payment terms for an EPC contract typically are lump sum, although there are many variations on how components of the work are priced. The Owner and Contractor may agree to pay the stipulated price in regular, equal monthly payments over the life of the project, to provide predictable cash flow. Alternatively, a percentage of completion formula may be preferred. Pricing of major equipment may allow for payment at set stages (such as at placement of the order, completion at the factory, arrival at the site, and mechanical completion). A cost-reimbursable agreement is possible for the EPC Contractor, with substantial negotiation over the costs charged by the contractor to the project. Owners and Contractors (or Engineers in EPCM) may also combine lump-sum work on select areas, where the risk-reward ratio justifies it, and cost reimbursement on the balance of the work. Owners often will want to combine the potential savings of cost reimbursement (to avoid markups) with the incentive of working against a maximum cost (to avoid inefficient work pace and lackluster negotiation of material and labor costs).

A comparison of 10 material components illustrates the differences between EPC and EPCM agreements.

§ 21B.03 Ten Points of Comparison

[1] Cost and Schedule

An Owner primarily worried about staying within its initial capital expenditure budget and meeting its project schedule likely will prefer the EPC contract form. A cardinal point of the EPC arrangement is that the Contractor promises a given result—the completed project—within a stipulated time and for an agreed-upon price. Because of these central issues of cost and schedule, EPC contracts often have very complete definitions of mechanical and substantial completion, a heavily negotiated contract schedule, and very explicit statements of what constitutes a force majeure event or a basis for a change in price. At least conceptually, the Owner should be prepared to give the Contractor considerable latitude on the methods and means of construction, numbers of craftsmen and amount/type of construction equipment, and wages and other incentives to assemble, retain, and motivate the work force and the subcontractors.

An EPCM agreement is not as well suited for demanding and obtaining a project on time and on budget. The Engineer ordinarily commits to use its best efforts to achieve those goals, but does not promise that either the cost or the schedule will be exactly what the Owner wishes. That said, some Owners and Engineers explore the outer boundaries of what is a goal and what is a guarantee by way of budget and schedule. Thus, an Owner may incentivize the Engineer to keep costs down so that the Owner's budget goal (and perhaps the Engineer's cost estimate) will be met. Likewise, the EPCM agreement may contain bonuses for meeting or exceeding completion date milestones. Also, the Owner and Engineer may agree in advance that at a designated point in the project, the Engineer will issue either a guarantee of the project price, the completion date, or both. It is uncommon in an EPCM contract for price or completion date to be guaranteed up front by the Engineer. Again, the Owner is buying service, not absolute promises of performance. In theory at least, savings to the Owner resulting from keeping the project from running over budget or behind schedule should be carefully considered. The rational Owner very well may accept these risks, to avoid paying for the contingencies an EPC Contractor would include for them, and, perhaps, to exercise more control over the project's quality and standards (for example, by picking subcontractors, suppliers, materials, and equipment proactively, while leaving the design largely up to the Engineer).

Along with quality, the cost and timeliness of a project are main components of risk that must be allocated clearly. When cost and schedule are paramount, the Owner should concentrate on an EPC agreement. When the Owner can absorb some flexibility in the price or the timing,

then an EPCM agreement may better suit the project because it allows the Owner to carry more risk, on the “bet” that the overall price will be lower, and the Owner will maintain more control over the details of the facility (through, for instance, active participation in selecting the subcontractors and suppliers).

[2] Defective Work vs. Defective Services

An Owner upset with defects in its project would present the Contractor with a claim for defective work (EPC agreement), while confronting the Engineer with a claim for defective services (EPCM agreement). As further discussed in this chapter, the Contractor warrants the adequacy of the completed work and the Engineer only warrants something to the effect that its services meet a carefully defined standard of good engineering practices.

The remedies for breach of warranty best illustrate the two contracts. Under an EPC agreement, the Owner will receive a replacement for the defective work; under an EPCM contract, the Engineer most often will reperform the services. Negotiation of an EPCM agreement requires careful consideration regarding what, if any, replacement of the work (as contrasted with a revised design, for example), will be required. Otherwise, the replacement design may be all the disappointed Owner will have to show for a vital component that failed and that must be rebuilt and retested, at great expense and with serious loss of time. The comparison is central to the two types of agreements.

The EPC agreement with a lump-sum price lends itself to enforcement of warranties that pertain to replacement of defective work. To be specific, regardless of why the work is improper (e.g., design, wrong equipment provided, improper installation, mistaken placement of the work, damage to the controls), the Contractor with a turnkey responsibility normally will be required to redo the defective work, retest it to turnover status, and absorb all the costs of such repair, but usually not the indirect costs of interruption or delay. Such full responsibility matches with the lump-sum approach that Owners often equate with EPC contracts.

The EPCM contract often contemplates a cost-reimbursement model of payment, usually with incentives for saving money, finishing on time, and providing demonstrable quality. When defective service is identified by the Owner, causing portions of the project to be repaired, the Owner must pay for the rebuilt work. At first, it may seem like a poor bargain for the Owner to have proceeded with an EPCM agreement when significant defects are discovered. After all, the Engineer often is only responsible for producing a better design, not necessarily fixing the damage to the project caused by a contractor following the defective set of plans. For truly large

problems, the Owner probably wishes for the comfort of a single point of responsibility provided by an EPC agreement. Nevertheless, for many facilities, the inevitable defects coming to light may not spell catastrophe. The Owner with the EPC agreement can expect to pay a significant, and largely invisible, premium to the Contractor for warranty work and replacement design, procurement, and construction. Either the Contractor or its subcontractors will protect themselves to some extent against future warranty claims. Thus, the Owner has paid for the cost of at least some rework, whether it is needed or not. A project with comparatively few defects may represent a hidden cost overrun for the Owner using an EPC agreement because of the anticipated warranty costs built into the lump-sum price. The EPCM Owner, correspondingly, “pays as it goes” for replacements and rework. The EPCM Owner may pay less, overall, for actual repairs to actual defects. The Owner also may decide to live with the problem when confronted with “optional” rework for defects not central to the project’s operations.

[3] Intellectual Property

Owners almost always want to own the completed project’s design, whether to keep anyone else from building one just like it, to modify or otherwise improve it in the future, or to protect the Owner’s intellectual property. After all, the Owner might argue, hasn’t the Owner paid for “its” project? In truth, the Owner usually has not paid for all of the project.

An EPC Contractor usually brings to the mega project considerable experience in designing similar facilities. The basic design, analysis of systems and orientation of equipment, and processing methodology embedded in the Contractor’s design was “paid for” by many previous owners and by the Contractor’s development of prototypical designs. It is a form of Contractor capital, a resource for this project and others like it. The EPC Contractor will not give up all use or ownership of its “background” intellectual property. The EPCM Engineer likewise will protect, at almost all costs, its core design for the same types of projects. In this respect, the position of Contractors and Engineers are the same: the basic design is not for sale.

From the Owner’s point of view, the Owner does not need a prototype plant, just as it does not need 40% complete drawings at final acceptance of the facility. What makes the project valuable to the Owner is the design of the specific work, not a generic version. The adaptations to the Owner’s processes, to its unique site, and to its existing facilities are what make the design worth owning. In that respect, Contractor and Engineer can generally agree: the Owner can own the final design, as long as the Contractor or Engineer can keep its intellectual property of the background

design, to allow them to stay in business. What about a technology breakthrough, such as a method of building the plant that saves the Owner significant operating costs, and that would be of real value in the future for both the Contractor and the Engineer? In this author's experience, good lawyering can allow the Owner and either the Contractor or the Engineer to share the benefits of this advance in technology or design. Both forms of contracting, EPC and EPCM, will require some clarity, and neither dictates the answer of who owns the breakthrough. While it may be appealing to argue that hiring someone to design a plant (for example, in an EPCM agreement) suggests that the design then is fully transferred, the same could be said for a turnkey plant delivered by the EPC method—it is transferred completely, design and all. Labels and abstractions do not suffice: a tailored ownership-of-design clause is the only satisfactory answer. Some combination of Owner ownership of the particulars of the design, receipt of a license to use the background technology, and a cross-license on any breakthroughs may satisfy all parties to either an EPC or EPCM agreement.

[4] Change Orders and Changes to the Contract

Much as Owners wish that there would be no change orders in either an EPC or an EPCM agreement, change is inevitable. In EPC contracts, Owners are often reluctant to recognize that there are exceptions to the EPC scope of work, there are reasonable assumptions as to conditions, and, notwithstanding everything else, there can be changes in contract provisions. Hence, change clauses, force-majeure provisions, and schedule updates and monitoring are standard in the EPC contract for any mega project. The EPC Contractor often has a difficult task convincing the Owner that something new is a change of law, an exception to the scope of the work, or an unforeseen and unusual condition. The concept of a lump-sum price for a turnkey project, which often accompanies the EPC agreement, makes for Owner skepticism. Owners can conclude that because changes that make the conditions of the work more favorable to the Contractor are never shared, why should all the news regarding variations in circumstances be bad news for the Owner's budget? From the Owner's vantage point, perhaps nowhere is the underlying difference between EPC and EPCM more clear than in the propensity for changes.

With an EPCM, the Owner should expect change orders, especially in the scope of the work. No one has accepted the risk of delivering an entire plant for one sum of money. More than likely, the Owner will have agreed to pay carefully defined costs plus a fee, with certain incentives, precisely to take on the risk of unknown conditions, rather than pay an EPC Contractor to fold them into its all-encompassing budget. Indeed,

the EPCM agreement often contemplates mechanisms for cost variables. The design may be pitted against later estimates of cost, for evaluation of design adequacy, before major equipment is ordered or significant work proceeds. Contracts for construction may be let in phases, as the work progresses and costs are better understood. Forward-looking pricing mechanisms may be included in the EPCM agreement, such as increasing or decreasing the project's scope, depending on progress against the Owner's project budget. Variations are almost presumed with an EPCM agreement, especially one based on reimbursement of costs. The flexibility of buying design services and then letting the rest of the project in waves or pieces carries a high level of change-order risk. Likewise, not placing one party at risk for the whole project means that price variations within the component parts are expected, and the sensible Owner creates reserves to meet the contingencies that otherwise might be the problem of the EPC Contractor.

With an EPCM agreement, the Owner has no entity to which it can look for broad project assumption of risk. For example, the EPC Contractor might be willing to contract for subsurface conditions, for enough money and with enough time to study the site. The EPCM Engineer would almost never warrant that its design thoroughly encompasses all unknown conditions or anticipates all subsurface factors. Consistent with divided responsibility and some measure of direct contracting with consultants and contractors, the EPCM agreement eases the Owner's assumption of risks for many matters ancillary, yet vital, to the core work. Subsurface conditions are at least arguably within the EPC Contractor's scope of risk. Not so for the service-oriented Engineer. Likewise, the usual letting of multiple agreements for pieces of the project lends itself to contracting out the investigation of the site or the subsurface work to distinct entities. Thus, an EPCM agreement logically fits with a site investigation contract let to a separate entity, and with stand-alone agreements with contractors performing distinct aspects of the work. Such division of responsibility, with the service-oriented Engineer representing the Owner on the site, rarely results in anyone but the Owner accepting the risk of changed conditions. Nonetheless, the Owner also should keep its savings in mind based on various parties not pricing into their agreements the risk of subsurface conditions and other sources of change orders. In short, a cost-reimbursable contract is much more likely to be found in the EPCM, and will include provisions for change orders, or simply additional scope added to the project and paid for as time and materials work.

[5] Standards for Performance

The Contractor working under an EPC agreement typically commits to design the mega project to a standard of care consistent with good practice in the particular industry appropriate for the facility. Some agreements seek different standards for different types of work, judging the design by standards similar to that of engineers or architects, while reserving a more commercial standard for procurement and new construction.

For most EPC facilities, the hallmark is a set of performance criteria for measuring the EPC Contractor's performance. These criteria usually focus on capacity of the facility, its efficiency in operation, and its quality of output. Obviously, different standards apply to a power plant than to an industrial facility, but usually there are several very carefully defined criteria to measure performance at the time the mega project is tested and turned over for operation. These performance criteria, be they measures of output, input, or both, are the heart of the typical EPC agreement's measurements of success or failure. These standards may include liquidated damages for failure to achieve the contractual goals, or "buy-downs" to allow the Contractor to pay for, rather than repair or replace, defective key components. Thus, the standard of performance is partly commercial (the performance criteria that the end product must achieve) and partly professional/commercial (the design methodology and the means of construction and provision of equipment and material). A project therefore might meet all standards for engineering and construction, but still fall short of the performance measures embedded in the contract, resulting in major financial penalties. Likewise, a plant might operate at contractually required levels of performance, but suffer numerous defects in construction or design, requiring repair or redesign under the agreement's warranty provisions.

The standard of performance for an EPCM contract frequently approximates a professional standard of care, at least for design and purely contract administration duties. This is a service standard of care, so it generally is measured by the skill and experience of comparable engineers and project personnel. The Owner is less likely to achieve the same performance guarantees as provided by an EPC Contractor. The reason is straightforward: there is no single point of responsibility for the entire project. Thus, because the EPCM Engineer does not fully control the equipment provision or the construction work, it does not normally allow itself to be judged financially by the final performance of the project. While some performance criteria may be considered, a comprehensive measurement of the completed plant as a standard of performance, coupled with financial consequences for failure, usually is reserved for

the turnkey EPC Contractor. The EPCM Engineer steers more toward interim performance measures such as experience criteria, staffing levels, and timeliness of design completion or meeting a design budget. With an EPCM contract, the standard of performance is more “personal than project”—the EPCM contract allows for varied commercial structures (e.g., incentives) to influence and reward behaviors important to the Owner and, overall, provides the Owner more opportunity to influence the project through active collaboration with the Engineer.

[6] Termination or Rights of Suspension

Owners dealing with either an EPC Contractor or an EPCM Engineer normally reserve the right to terminate the agreement, with or without cause, and to suspend work for a predetermined interval. Suspensions usually do not require justification, although Contractors and Engineers usually negotiate at least an equitable adjustment for their costs and delays arising from a sustained suspension. While termination rights (such as for failure to make payments) frequently inure to the benefit of both Contractor and Engineer, neither a “right” of termination without cause nor a right to suspend work is common. More likely, both EPC and EPCM agreements contain the opposite concept: work must continue notwithstanding disputes over the scope of work or other project-related disputes. It probably is a matter of pure negotiating leverage, but Contractors in EPC agreements appear to succeed in negotiating substantial payments for an Owner exercising its right to terminate without cause, compared to Engineers in EPCM agreements attempting to procure robust compensation for being terminated without cause. Again, it makes sense, since the Engineer proffers only its services, while the Contractor controls the entire project and thereby can bring more pressure to bear if terminated.

[7] Insurance and Indemnification

The scopes of insurance differ between an EPC contract and an EPCM agreement, reflecting the broader scope of the turnkey project. Most Owners will reasonably require that plenty of insurance be carried by the respective Contractor and Engineer, to the extent that the Owner does not address the insurance needs of the project through a wrap or project insurance policy for liability and property coverage. Thus, the Contractor providing insurance will carry more coverage because of its greater work scope compared with the EPCM Engineer. However, measuring comparable insurance risks, both entities must procure and carry professional liability insurance for design errors or omissions long past project completion (tail coverage), and need similar levels and types of such insurance.

Negotiations of both EPC and EPCM agreements now focus on forms of cost sharing. Owners may elect to front the cost of liability insurance through an Owner Controlled Insurance Program (OCIP) or a Contractor Controlled Insurance Program (CCIP), where the project-wide insurance is priced openly and competitively. In theory, the Owner should achieve a lower overall cost, but the question is whether that savings can be translated into measurable and meaningful cuts in price by project participants, who need far less insurance on this project. Owners may opt for the opposite approach, by demanding that everyone on the project make the Owner an additional insured. This may or may not increase the net cost to the project and ultimately the Owner. Clearly, enforcing and policing a matrix of additional insured coverage is a hidden expense and a serious commitment of time. Ultimately, the Owner may be better off by realistically assessing its needs, and then negotiating to procure or to cause others to procure the type and amount of coverage sought. Professional liability coverage is one area where a project-specific endorsement may be needed to bring the right amount and duration of errors and omissions (E&O) coverage to the project.

Indemnification, however, differs. Owners require their EPC Contractor to protect them from third-party claims arising from a broader scope of work, when compared with the indemnity obligations of the EPCM Engineer. Again, this distinction reflects the greater scope of work inherent in the EPC contract. Thus, for instance, a Contractor can expect the Owner to demand indemnity for hazardous materials brought onto the site by the Contractor (except as required by the Owner's project requirements), whereas few Engineers would stipulate to defending an Owner for any substantial hazardous material exposure. In short, the EPC Contractor has a greater indemnity risk compared to the EPCM Engineer.

[8] Dispute Resolution and Governing Law

Forms of dispute resolution and selection of governing law are key terms of any mega project. They do not differ significantly between EPC and EPCM agreements. Indeed, all parties theoretically have compatible interests in selecting rational and responsive methods to address any claims and to clearly provide applicable procedural and substantive law. Thus, Owners, Contractors, and Engineers are no more (or less) prone to look for a "hometown advantage" in dispute resolution or applicable legal principles under an EPC or EPCM contract.

Dispute resolution in both EPC and EPCM agreements normally involves negotiations, some form of mediation or advisory opinion (a dispute review board), and then arbitration. Litigation is an option seldom chosen by Contractors or Engineers, who may be rightly reluctant to

sue an important business, utility, or government company in the host country. Many deals turn to international arbitration, such as provided under the International Chamber of Commerce rules. In general, using an international set of rules is preferable because it avoids the appearance of favoritism that can ensue from using one nation's arbitration rules and procedures. A hallmark of international arbitration is that it is not overshadowed by one nation's procedures or practices. Stated otherwise, international arbitration is not the same as "at home," wherever that may be. To take but one important example, international arbitration often provides for the selection of arbitrators from countries other than those associated with the parties.

Governing law is far less flexible than methods of dispute resolution. While it may be possible to select as governing law the rules of a neutral jurisdiction, usually each party tries to impose the governing law that will favor its interests. What can be quite incompatible is attempting to graft onto an agreement a body of law not well developed or otherwise suitable. Speaking from experience, the author can say that an agreement using English conventions and format, written with American terms and standard phrases, but governed by Norwegian law, made finding a predictable answer to basic concepts of interpretation very challenging. The mixture of civil and common law agreements often yields strange hybrids. In any event, selection of governing law remains a major point of contention, but not one that truly distinguishes EPC contracts from EPCM agreements.

[9] Liability Limits

Under current financial conditions, there may be EPC Contractors willing to work with greater risk and higher limits of exposure for a project being late, not performing as designed, or costing too much. That said, the norm has been, and largely still is in the minds of most mega project firms, that the EPC Contractor expects a limitation on its liability for delays in delivery and for performance shortfalls. Most EPC agreements have capped the Contractor's total liability at a specific amount, regardless of cause, and often there have been separate caps of exposure for particular risks. For example, liquidated damages for delay might have a limit, measured in days or in total assessment of penalties, and the overall cap might be some higher number that explicitly covers all risks. Performance guarantees almost always come with pricing mechanisms to measure the cost to the Contractor for failing to achieve the desired outputs, or failing to consume only the specified inputs.

Most Owners are more willing to cap the exposure of an EPCM Engineer, in light of the fact that the EPCM Engineer provides services

rather than a completed project. Limiting liability to the amount of available insurance, for example, is common in EPCM agreements. In most situations, however, Owners should not be satisfied with limiting liability risk to the amount of the fee.

In both EPC and EPCM agreements, the parties generally have considered waivers of certain classes of damages, in addition to a cap on liability. Thus, waivers of lost profits, of indirect costs of delay, or of opportunities forfeited by poor performance are common in both such contracts. Owners would be well advised to insist on the limitations of recoverable damages being mutual. Granted, the business of the Owner differs from that of the Contractor or the Engineer, but the Owner also stands to lose much more. Thus, the lost profits on an oil platform delayed a year, a power plant pushed past the peak demands of a summer, or a smelter not operating as designed probably dwarf the consequences to the Contractor or to an Engineer of a project being shelved or cancelled due to radical changes in industry needs. In this author's experience, a cancelled facility reflects more loss (due to changed market conditions, for instance) to the Owner than to a disappointed Contractor or Engineer, and thus, liability limitations almost always impact the Owner disproportionately. That, arguably, is why reciprocity is only fair.

[10] Security for Performance

In a world of financial fragility, everyone is interested in project financial security. Owners of mega projects long have exacted security for performance of contract obligations. Typically, the EPC Contractor is expected to post some combination of a letter of credit, a parent company guarantee, a performance bond, a payment bond, and/or insurance for a variety of hazards. Retention on the amount of the contract performed, to ensure completion of work, also acts as a security device. How much do Owners post by way of security? Not much, and not nearly enough in the eyes of many project participants. At a minimum, greater disclosure of project finances can be expected both at the start and throughout the course of performance. Can letters of credit from the Owner be expected, for the current month's work, for instance? Not necessarily, but someone will ask and negotiate with that in mind. Likewise, guarantees beyond limited or non-recourse project financing remain a possible subject for negotiation.

The EPCM Engineer puts up far less security because its commitment is to provide services rather than a finished project. In fact, even retention may seem unwarranted to many Engineers. Generally, Owners mostly rely upon the veritable carrot of bonuses and incentive payments, rather than the stick of instruments of security.

§ 21B.04 Conclusion

Mega projects vary by industry, by public-private ownership, by risk of technology and development, and by a host of other factors. No single contract form, even those as flexible and developed as the EPC or the EPCM models, will suffice for every need. These points of comparison should help sort out the qualities that an Owner may want to include in its ultimate agreement. Parties working with that Owner, as well as their attorneys, need to keep these subjects of risk allocation in mind, if the project is to succeed and if they plan to move on to the next big undertaking in a highly competitive environment. The cancellation of mega projects and the postponement of many more make all parties more dependent on “getting it right” when they are able to work together.

