

Contract Considerations

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Nuclear new-build projects are, by their nature, difficult to deliver. Daniel Garton and Chris Duncan examine issues that need to be addressed in construction contracts for nuclear plants.

CAPITAL EXPENDITURE REQUIREMENTS, COMPLEX TECHNOLOGY, long construction periods, regulatory requirements and regulator involvement, and political sensitivity around nuclear power, are all risks in bringing new nuclear power plants online. Recognising and understanding these risks and taking steps to address them in the construction documentation is key to reducing the risk of time and cost overruns.

Structuring the procurement of a nuclear plant and negotiating the relevant construction documents is more complex than for a conventional power plant. Here are some of the key issues that have to be given particular consideration when structuring and negotiating nuclear construction contracts:

- **Design and licensing review.** Many construction contracts contemplate some level of review of the design documentation by the owner, but the design review process for nuclear projects is particularly onerous, given: the number of design and licensing documents to review; the cutting-edge and proprietary nature of many of the systems and structures in the design; the demanding regulatory requirements, which vary from country to country; and the fact that many of the design documents and all of the licensing documents have to be approved by both the owner and the regulator. Because of this, the design, review and approval process on nuclear plants is frequently delayed and disrupted. The impact is greater because of the interdependent relationship between the design disciplines and trades, and the general requirement that all design affecting nuclear safety be approved by the regulator before the related physical works can commence.

It is crucial to include a detailed and prescriptive design documentation review process in the construction contract, to clarify each party's obligations and ensure that any slip in the schedule can be identified quickly and mitigation plans can be developed. Such provisions will also assist in determining responsibility for the delays where the schedule cannot be recovered. It is essential that document submittal schedules are developed early by the contractor and shared with the owner and the regulator to allow resource planning. Documents should be delivered in logical and manageable batches, such that the owner and the regulator can review and approve the documents without waiting for further information. Appropriate review periods for the owner and (as far as possible) the regulator must be agreed and accounted for in the schedule. The parties should expressly address responsibility for delays caused by the regulators' reviews.

- **Variations.** A nuclear regulator may require changes to the design of the plant, so it is particularly important that construction contracts include a robust variations mechanism to deal with them. Frequently, construction contracts are drafted in a way that enables the contractor to defer proceeding with a variation until the terms of that variation have been agreed between the parties. If this position applies in the case of nuclear plant, it may result in costly delays in implementing changes mandated by the regulator. Our experience is that nuclear developers will require a right to request the contractor to proceed with any variations pending agreement on the price or schedule impact of the variation, at least where the variation results from a change required by the regulator. The parties may also wish to consider including some form of rapid dispute resolution mechanism to address the impacts of regulator-instructed changes quickly and in parallel to the execution of the relevant works.

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- **Creditworthiness of contractors.** The risk of time and cost overruns are more pronounced for nuclear than other projects, given their relative complexity and size. While limited-recourse financing has traditionally been structured on the premise that contractors take in large part the risk associated with the construction phase of a project; this approach has commercial and practical limitations in the context of nuclear plants. Given the significant costs associated with unforeseeable events during their construction phase, there is a limited field of contractors that can meet the liabilities allocated to the contractor in the event of cost overruns during the construction. This is particularly the case where one engineering and construction contractor bears single-point responsibility for the delivery of the entire plant under a single contract. If contractors cannot in reality bear the risks accepted by them under the construction contract, then the risks allocated to the contractor will become an issue for the sponsors, lenders and potentially the host country. To help mitigate creditworthiness risk, the owner will often seek a parent company guarantee from the contractor's parent (where the contractor is not the ultimate parent company in its group).
 - **Nuclear indemnity.** Contractors are typically unwilling to accept risk associated with a nuclear incident involving the plant and will seek an indemnity from the owner in respect of it. A common topic of negotiation is the scope of exclusions from the nuclear indemnity under the construction contract although such exclusions tend in practice to be fairly limited and focus on matters such as fraud, gross negligence and wilful misconduct. Owners also frequently propose that any nuclear indemnity should only apply up to the limit of liability of the nuclear operator under the relevant international conventions governing liability for nuclear damage.
 - **Extended project lead times.** The lead times for design and construction of nuclear plants are longer than for conventional power plants. The impact of this will have to be considered by the parties and addressed in the contract. For example, it is common for contractors to request some form of price escalation mechanism in engineering, procurement and construction (EPC) contracts for nuclear power plants, even where the EPC contract has been priced on a lump-sum basis. In addition, the longer duration of the contract means that there will be more likelihood of a force majeure event so more focus on the provisions should this occur. Any rights for the parties to terminate the contract due to prolonged force majeure will have to be carefully considered.
 - **Subcontractors and sub-suppliers.** Many specialist subcontractors and sub-suppliers are required in a nuclear build project. There will be a limited number of competent and capable sub-suppliers to choose from, meaning that suppliers can also be difficult to replace if problems arise during the project. So it is important to consider at the outset how these suppliers will be selected. In particular, the extent of the owner's prior approval rights in relation to subcontractors and sub-suppliers will have to be agreed between the parties. Robust procedures will also be required to manage the interfaces between works provided by different specialist subcontractors and sub-suppliers.
 - **Dispute resolution.** Given some of the issues identified above, it is common for large claims for additional time and money to arise on nuclear projects and these claims can often become disputes. Because of the long lead time disputes can arise during the course of the works and if they cannot be resolved efficiently they can damage the relationship between the parties and have a detrimental effect on completion of the works. It is, therefore, important that the parties give careful consideration to how these disputes will be resolved. Most nuclear EPC contracts will include tiered dispute resolution clauses with a combination of an amicable settlement period, senior executive review, expert determination and or Dispute Adjudication Board (DAB), with a final determination by way of international arbitration. Parties should consider whether the project would benefit from a standing DAB and whether a 'one size fits all' dispute resolution clause is really appropriate given the extremely varied nature and size of the disputes that can arise on nuclear projects. Parties should also ensure that the dispute resolution mechanism is clear and robust, as disputes regarding the proper operation of dispute resolution clauses can cause significant delay to the resolution of disputes.

The way forward

While nuclear power plants have traditionally been financed using a sovereign or utility balance sheet, the expectations of potential lenders are now increasingly relevant. Countries with growing energy needs are now considering other structures to fund new nuclear projects, such as limited recourse financing and export credit agency (ECA) finance.

Developers seeking to utilise limited recourse project financing will have to take account of likely lender expectations when negotiating the EPC contract. Developers seeking to attract lenders will face close scrutiny and lenders are likely to require some form of sovereign or sponsor completion support, given the heightened cost overrun and completion risk on nuclear projects

The better that parties can anticipate the issues which are likely to arise during the construction of nuclear projects and address them in the construction documentation, the more likely they are to avoid, or at least mitigate, the potential delay and cost overruns caused when issues (inevitably) arise during the project development phase.

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