Managing Construction Risk and Liability for SMRs Under English Law

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PRACTICES Carbon Capture, Utilization, and Storage (CCUS), Construction Contract Drafting and Negotiation, Construction, Energy, Power and Natural Resources, Nuclear Energy

Small modular reactors (SMRs) promise shorter build times, modular delivery and more predictable programmes. However, they are still first-of-a-kind new technologies. Their novel designs, evolving regulatory backdrop and offsite/onsite integration risks, mean that standard form contracting approaches will be helpful, but not sufficient. For owners, vendors and contractors operating under English law, getting the contractual framework right early is the most effective lever to manage risk and maintain bankability for all involved.

This article outlines some key construction risks and liabilities particular to SMR delivery in the United Kingdom and offers some practical drafting tips for English law contracts.

Contracting Strategy: Procurement and Structure

As a starting point, both single-point engineering, procurement and construction (EPC) contracts and multi-contract strategies are viable approaches, but each approach has strengths and weaknesses. Modularisation often favours multi-contract delivery, but the interface risk between the reactor vendor, fabricators, civil works, balance-of-plant and eventual integrator is significant. If pursuing multi-contracting, the owner must keep a careful eye on coordination, maintain an interface matrix and enforce back-to-back obligations as fully as possible, while still maintaining a collaborative approach that seeks to align the various parties. In addition to avoiding the risk-premium associated with EPC contracting, a multi-contract procurement strategy should allow the owner to better control the pricing and scheduling risks associated with the SMR modules, which will be long-lead items.

A single EPC can consolidate risk, but true single-point responsibility is challenging where the reactor vendor likely controls safety-class design or the timings of long-lead manufacture of the SMR modules. If an EPC approach is used, it is important to test that the contractor can control and insure the risks it is asked to bear and that vendor warranties/liabilities flow down effectively. Standard forms (FIDIC/NEC) are a scaffold only; substantial amendments are needed for nuclear specifics such as safety-case change control and factory inspection regimes, along with commissioning, traceability and alignment with any statutory requirements.

First-of-a-Kind Realities: Design, Supply Chain and Integration

First and early-of-a-kind status brings uncertainty in design, constructability and the depth of the supply chain. Offsite factory fabrication can compress onsite schedules, but may shift risk to procurement, quality assurance, pre-commissioning and logistics. Late changes to safety-case assumptions, regulator-driven adaptations and module-to-module rework are potential challenges.

Nuclear-grade supply chains remain particularly shallow with long-lead times, and delays can arise from a wide variety of unforeseen circumstances. While investment in such supply chains in the UK is in progress (including when it comes to the dearth of skilled and trained individuals), ambitious schedules should be tempered by a realistic and sober analysis of this wider picture.

Contract drafting can seek to mitigate some of these risks with flexible variation mechanisms, robust interface obligations, sensible quality regimes and a conscious allocation of design/performance risk to the party with real control. Contracts should define a single, coherent scope breakdown and an interface matrix that allocates responsibility for such issues as mechanical, electrical and control system integration, testing sequences and data handover. Delivery terms must be explicit about transport logistics, title and risk in transit, damage rectification and storage/lay-down responsibilities. Where modules from different vendors must interoperate, interface control documents and coordinated design freeze milestones can reduce the risk of late rework. Getting all parties into the tent and working together as early as possible will be in everyone's best interest.

Drafting should distinguish contractor-caused change from regulatory change and from unforeseeable/force-majeure events. Liquidated damages for delay or performance can be a helpful approach, but should be sensible and proportionate with clear concurrency rules. These are especially necessary where multiple contractors contribute to delay.

With respect to design and performance risk, understanding the difference between a "reasonable skill and care" obligation and a strict "fitness for purpose" warranty is critical. Under English law, construction contracts frequently carry a promise that the resulting project will be capable of being used for its intended purpose. This warranty may be implied (where the employer makes known a particular purpose, the contractor holds itself out to perform the work, and the employer relies on the contractor's skill and judgment) or, more often, an express contractual term.

On SMR projects, contractors will naturally seek to resist fitness obligations where they do not control the technology design of the SMR modules themselves. Such a warranty can potentially be extremely wide-ranging and require a level of performance which may become impossible, either from a regulatory or technical standpoint and out of the contractor's control. As such, it is sensible to define design responsibility module-by-module and system-by-system, linking each element to the applicable standard of care and precise requirements. Testing and quality control in early stages at the vendor's plant can help maximise visibility for all parties and may assist in spotting potential problems early on.

Tie performance guarantees to parameters within the contractor's control; otherwise prefer compliance with design criteria and successful performance tests. Use of a detailed technical schedule (codes, standards, quality classes) and a robust priority-of-documents clause can help resolve inconsistencies.

Finally, intellectual property is central to SMR delivery. Licence agreements must balance protection of proprietary reactor technology with rights to use, adapt and maintain the works over the plant life, including decommissioning. Robust confidentially and export-control provisions are vital and may require legal advice from multiple jurisdictions depending on the global footprint of the project.

Programme, Time Relief and Incentives

SMR programmes must integrate offsite manufacture by the vendor, logistics, installation, pre-commissioning and staged commissioning. This can be complex. To minimise disputes and provide for a sensible and balanced approach, extensions of time should be available for (i) regulatory interventions beyond a party's reasonable control; (ii) late design freeze or safety-case changes not due to contractor default; and (iii) supply-chain failures driven by force majeure (including geopolitics). This can be balanced with duties to produce recovery plans, re-sequence work and mitigate delays, which is underpinned by early warnings, rigorous reporting and baseline revalidation.

Factory fabrication reduces weather and labour variability, but it is not immune to procurement delays, bottlenecks and off-site commissioning issues. Time for delivery should be realistic and supported by approved supplier lists, critical spares strategies and step-in or dual-sourcing rights for long-lead items. For cross-border manufacturing, export controls and sanctions compliance covenants should be incorporated into contracts, and technology transfer obligations (and restrictions) need to be contractually aligned with licensing requirements.

It is also important that thought is given to the more prosaic issues affecting programme and routinely found on construction projects. This would include, for example, assigning responsibility for unforeseen ground conditions, particularly where installation will take place on a former industrial or other brownfield site.

Any delay liquidated damages should follow a critical path that incorporates regulatory requirements. It can be helpful to consider complementary incentives for milestone achievement to encourage collaboration, not just motivation by fear of punishment.

It may be helpful to provide that variation orders allow the employer to instruct work to proceed immediately, with valuation to follow on an agreed timetable. This approach preserves momentum while still protecting commercial positions. Notice requirements (including express time periods and consequences of failure to comply with such requirements), record keeping and pricing mechanics should be clear, simple and enforceable.

Dispute Avoidance and Resolution

While disputes are not inevitable, they are more likely with first-of-a-kind technologies in a rapidly-developing global regulatory regime. The aim, therefore, should be to contain any disputes early. Depending on the nature of the project, especially if there is to be a long-term relationship across multiple projects, consider using tiered mechanisms: early warning and senior-level meetings; standing dispute avoidance/adjudication boards with nuclear expertise for recommendations or binding interim decisions; expert determination for discrete technical issues; and arbitration for final resolution and cross-border enforceability. Fundamentally, however, it is essential that the drafting of any such preconditions to arbitration is done clearly to avoid procedural satellite disputes and unnecessarily wasted costs.

Conclusion

SMRs present a compelling path to expand the UK's low-carbon baseload, but they compress traditional risk into novel places: factory floors, logistics chains and safety case documentation, all just as much as construction sites. English law provides the tools to manage these exposures with the contractual freedom to clearly tailor risk allocation and deal with variations in a way that is

acceptable to all parties, alongside flexible dispute resolution provisions when things don't go to plan. Success depends on realistic programming, disciplined change control and careful drafting that respects both nuclear-specific requirements and the practicalities of first-of-a-kind engineering. Get these foundations right and SMR delivery becomes not only more bankable, but more buildable.