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# Constructing the low-carbon economy

As the world responds to a global shift toward a low-carbon economy, there's unprecedented focus on the legal intricacies of major construction projects

## Contents

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Foreword

Page 1

---

Risk allocation  
and mitigation in  
energy projects

Page 2

---

Refurbishing and  
retrofitting brownfield  
projects for a low-  
carbon future

Page 6

---

Building toward net-zero

Page 10

---

Energy and infrastructure  
project risks concerning  
escalation

Page 18

---

Data centers: Can the  
demands for increased  
capacity and energy be  
met sustainably?

Page 24

---

Tackling geopolitical  
challenges in Australia's  
construction industry  
through collaborative  
contracting

Page 26

---

Recent developments in  
English construction law

Page 32



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# Foreword

With unprecedented momentum for the construction of new major projects linked to the shift away from fossil fuels and the development of a low-carbon economy, there is a real focus on construction law issues relevant to such projects

The widespread recognition of the urgent need to transition away from fossil fuels in energy systems, combined with a drive to decarbonize hard-to-abate industries, corporate and geopolitical tussles for supply chain security and market share for new green technologies, as well as various regulatory incentives and trade barriers, are collectively building unprecedented momentum for the investment in and construction of new major projects.

Such construction projects are no longer limited to wind, solar and other renewable energy; significant capital expenditure is also necessary to revolutionize heavy-emitting, fossil fuel-dependent industries such as steelmaking, alumina refining and cement production. This transformation may involve re-engineering existing plants to utilize clean energy sources and eliminate the need for coal and natural gas or adding carbon capture facilities to emitting plants.

As the transportation industry undergoes a revolution, entirely new industries are emerging, including pioneering projects for synthetic aviation fuel and gigafactories for batteries to support carbon-free mass transport. The rapid growth of the digital world, along with the current boom in Generative AI, is fueling the proliferation of data centers—one of the most energy-intensive building types—driving in turn their own need to limit electricity consumption and carbon footprint in order to achieve net-zero.

In this compendium, we take a closer look at the complexities and challenges of refurbishing and retrofitting brownfield industrial projects for a low-carbon future. We also explore methods for developing new data center projects in a more sustainable way, resulting in reduced carbon emissions.

The construction industry faces the challenge of finding appropriate and sustainable procurement and contracting structures for delivering these low-carbon projects. Many projects are of such scale or involve so many new technology risks that traditional procurement structures need to be revisited and challenged, often with the aim of better managing and sharing risks between the contracting parties, and ensuring the nurturing of new technologies.

We examine the growing use of multi-contract procurement structures in the US, and the use of collaborative contracting strategies in Australia, as well as an array of “green” contract provisions that have been introduced in FIDIC, NEC and JCT contracts to track ESG issues arising out of new construction projects.

Lastly, given that English law remains one of the dominant choices for governing major construction contracts in many jurisdictions, we conclude the compendium with an overview of the major recent developments in English construction law.

We hope you will find this compendium a useful and thought-provoking read, and look forward to exploring these themes as the landscape of major construction projects continues to evolve.



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# Risk allocation and mitigation in energy projects

As the landscape for new energy projects evolves, parties are reassessing their appetite for risk and proactively seek solutions to ensure success—**Aaron Potter** and **David Strickland** highlight

**R**isk plays a pivotal role in any energy construction project, and the allocation of risk is what a construction contract does. Project parties—owners, contractors and especially lenders—get comfortable with a certain level of risk based on what is customary for that type of project. However, sometimes one or another of these groups begins to think of the customary risk allocations as misaligned, and refuses to accept what used to be acceptable. New options are needed.

This is arguably happening today in the US with respect to two major types of energy projects: solar paired with battery storage (solar-plus-storage), where owners and their lenders are demanding change; and liquefied natural gas (LNG) and petrochemical projects, where contractors are balking at longstanding engineering, procurement and construction (EPC) arrangements. In both areas, use of a multi-party integration agreement may provide a solution.

Solar-plus-storage projects, by their nature, involve two major components: the specialized equipment such as solar panels, batteries, generator step-up transformers and inverters that will perform the main function of the completed project; and the work to prepare the site, to install and start up the equipment, and to integrate the systems.

The equipment is manufactured off-site by one or more third parties, using proprietary technology. For various reasons, including the high

value of the equipment compared to construction and installation costs, the owner typically engages the manufacturers directly, through separate equipment supply contracts. Since each manufacturer's business is typically focused on producing and selling its product, and the manufacturer's location is likely distant from the project site, the owner must engage a different contractor to do the on-site work, generally via an EPC contract.

## Types of risk in solar-plus-storage projects

The resulting contractual structure, with the owner under separate direct contracts with two or more major contractors performing interrelated work at the same time in a multi-prime arrangement, exposes the owner to three serious interrelated risks.

The first is scope-gap risk. If it is debatable whether necessary work is within the scope of one contractor or another, each will be incentivized to disclaim responsibility for that scope. The owner will likely

be in a weak bargaining position, needing to keep the project moving without spending undue time attempting to resolve the dispute, and has reason to avoid the problem by giving in to the contractors' position. This unfortunately gives the contractors an additional incentive to claim scope gaps.

Finger-pointing risk is a second major risk for multi-prime projects. If something goes wrong and it is not obvious which contractor is responsible, each contractor will be tempted to attribute the problem to the other contractor. This is similar to scope-gap risk, but applies not only to scope but also to matters such as defects and damage. Also similar to the scope-gap situation, an owner faced with finger-pointing contractors may be in a weak bargaining position.

Finally, knock-on risk anticipates the eventuality of one of the contractors damaging or delaying the other, forcing the owner to grant relief to the injured contractor. Such relief will typically be in the form of increasing the injured contractor's price or granting it additional time.



**Risk plays a pivotal role in any energy construction project, and the allocation of risk is what a construction contract does**





Although the owner may later have separate recourse against the offending contractor, this is far from ideal. The offending contractor may offer inadequate concessions or may deny responsibility entirely. In a case where the owner has to grant the injured contractor a time extension, there may be no clear way for the offending contractor to make the owner whole.

### How to manage risk

In the solar-plus-storage context, these multi-prime risks have historically been tolerated by owners and lenders. Projects and risks were smaller and did not seem to merit bespoke arrangements. More recently, declining battery costs and new federal investment tax credits have led to a rapid growth in utility-scale solar-plus-storage projects. The prospect of bearing multi-prime risks on projects of this size and complexity is much more daunting, and many owners and their lenders are looking for new options.

The obvious solution to an owner's multi-prime risk concerns is for the owner to engage a single prime contractor that will be responsible for all elements of the project. This arrangement, embodied in the traditional lump-sum EPC contract covering the entire project, has for various reasons never been a workable option for most solar-plus-storage projects. It has, however, been the typical arrangement for most other types of energy projects, including LNG and petrochemical projects. The owner admittedly pays a premium for the privilege of shifting the multi-party risks down to the EPC contractor, but in exchange it gains a measure of control and assurance and, most importantly, renders the project bankable.

For an increasing number of contractors, this longstanding arrangement is no longer acceptable. Among other causes, projects have increased in scale and complexity, multiplying the risks assumed by a lump-sum EPC contractor with a guaranteed completion date. Such risks have been exposed in various high-profile instances of major international contractors pushed to the brink of collapse as a result of losses linked to cost overruns and delays. A number of engineering and construction firms, in the US and elsewhere, have reduced their



involvement or even exited the lump-sum EPC business altogether to avoid similar outcomes.

If a lump-sum EPC is not an option for a project, and a multi-prime arrangement is similarly not feasible due to the scope-gap, finger-pointing and knock-on risks cited above, what options remain?

### Integration agreements

One promising possibility is to use an integration agreement structure. The first element of this structure is standard: The owner engages each of the principal contractors separately, using whatever form of contract it would typically use in a multi-prime arrangement, such as a lump-sum EPC for that contractor's specific scope. The second element is new: The owner and all of the prime contractors together enter into a multi-party integration agreement.

The integration agreement supplements the direct owner-contractor agreements. It provides the contractors with a forum and procedure for coordinating their operations and resolving their differences, in connection with their work under their respective direct owner-contractor agreements.



**US\$320  
billion**

Global solar PV investments in capacity additions surpassed US\$320 billion in 2022, according to the IEA

From the owner's perspective, the integration agreement substantially mitigates scope-gap, finger-pointing and knock-on risks, which are an inherent part of a multi-prime arrangement.

With respect to scope-gaps and finger-pointing, the integration agreement assumes that the contractors have together committed to deliver a complete and functioning project. Consequently, in the case of a scope-gap dispute, or in the case of a problem that gives rise to finger-pointing, the problem is more to determine which contractor is responsible than it is to determine whether a contractor is responsible.

Effectively, the burden of proof—to establish the owner's responsibility for alleged scope gaps, and to show that one contractor rather than another is responsible for a problem that emerges—is shifted from the owner to the contractors.

Additionally, the owner and its lender need the determination process to be expedited and streamlined in a way that will yield timely and decisive decisions that do not require the owner to bear risks that should be borne by one or both contractors.



To do this, the integration agreement could, for example, provide a special process for scope-gap disputes—and potentially also for inter-contractor disputes over amounts owed to the owner due to contractor defaults. Under this process, disputes are referred to the owner and the owner makes an expedited determination that the contractors must promptly follow.

If a contractor believes that the owner has misallocated responsibility that should belong to the other contractor, the provisions could have a process for the aggrieved contractor to raise its concern to the other contractor and resolve the dispute directly between the contractors. This type of process not only provides a way to resolve problems, but also gives the contractors a mutual incentive to coordinate their work and avoid scope disputes in the first instance.

With respect to knock-on risk, an essential element for the owner and its lender is that the owner cannot be held liable to one contractor for damage that is the other contractor's fault. In exchange for granting the owner this affirmative protection, the integration agreement can

provide a process by which an injured contractor can seek recourse directly against the contractor that caused the injury. This recourse can be subject to reasonable limitations agreed between the contractors, such as waivers of consequential damages and any special negotiated caps. Additionally, unit prices and other negotiated pricing arrangements can simplify the process of quantifying a contractor's liability to the other.

To facilitate inter-party coordination and mitigate the threat of endless disputes, the integration agreement can also provide for a steering committee, with one representative for each of the parties, that will meet regularly

to identify and attempt to resolve problems. Thorny issues can be elevated to an executive committee and, if not resolved at that level, can be pursued through a specified binding dispute resolution process.

### **Tried and tested**

Although the integration agreement structure is a new element in private energy projects, it is not an untried idea. For example, this structure is commonly used on public-private partnership projects in the US, where the parties to the integration agreement are typically the owner, the design-builder that constructs the project, and the contractor that will operate the project once it is constructed. Perhaps in part for this reason, lenders have shown interest in introducing the interparty structure into the private energy context.

For the multi-prime difficulties that threaten the expanding field of solar-plus-storage projects, an integration agreement structure could substantially mitigate the scope-gap, finger-pointing and knock-on risks that are plaguing owners and deterring lenders.

Likewise for other energy projects, including LNG or petrochemical projects, in cases where the lump-sum EPC model is no longer feasible, an integration agreement structure could provide a workable compromise that reduces the risks for contractors without leaving the owner with unacceptable exposure.

With a drive toward a lower carbon future continuing, and in an environment where contractors are rejecting traditional contractual arrangements, the need for new solutions is imperative. Thoughtful and creative use of models that have worked elsewhere can provide ways to mitigate the changing risk profile and ensure the success of new energy projects.



**An integration agreement provides contractors with a forum and procedure for coordinating operations and resolving differences under their direct owner-contractor agreements**

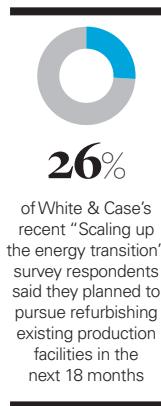
# Refurbishing and retrofitting brownfield projects for a low-carbon future

There is significant interest in investing into the rejuvenation of brownfield projects, but these projects face construction law challenges, as **Rebecca Campbell** and **Paddy Mohen** explore

While the construction of new renewable energy projects continues to be the most dominant headline regarding energy transition-related opportunities, White & Case's recent survey of how corporates and capital providers are setting priorities to scale-up the energy transition, has also identified significant interest in rejuvenating brownfield projects.

Over a quarter (26 percent) of White & Case's survey respondents said refurbishing existing production facilities to be more energy-efficient and less polluting was an opportunity they planned to pursue in the next 18 months. A similar proportion (24 percent) identified investing in brownfield projects to transition them to a lower-emissions fuel source or sector as an opportunity they planned to target.

Works at brownfield projects incur additional construction risks that



companies will need to consider and manage when procuring and carrying out construction works necessary to transition existing facilities to a low-carbon future.

## The complexity of construction works on brownfield projects

Whether an expansion, add-on or complete revamp of an existing brownfield project, the interaction and integration of an existing, operating and often old project with new works is intrinsically more complicated than a new-build project on a previously unused site. Refurbishment works in particular are often described as the most difficult type of project for process plants.

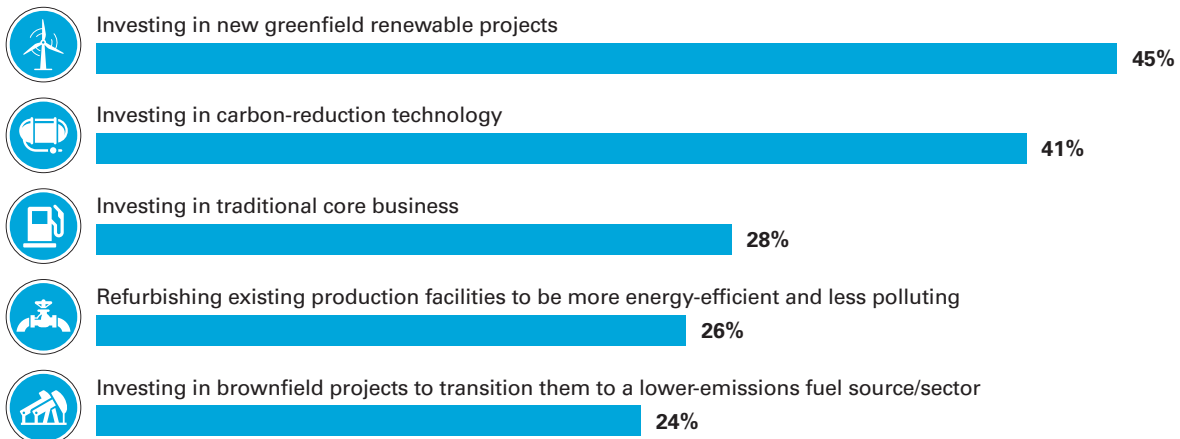
The challenges facing brownfield projects are varied, and depend in part on the project in question and the technology being retrofitted to the existing plant.

## Managing and mitigating construction challenges

While some of the risks regarding refurbishment works are intrinsic to the nature of the works themselves, they can be managed and mitigated by the terms and conditions of a properly prepared and negotiated construction contract, and by prudent contract management and procurement.

Selecting the correct contractor, or team of contractors, to carry out the works is a critical first step. The contractor market for this kind of work is narrower than more conventional construction works. Owners therefore have a more limited choice, and contractors accordingly have more leverage when tendering. This competition and tender may well be exacerbated if the energy transition results in more retrofit projects being undertaken.

## Which energy transition-related opportunities are companies planning to pursue over the past 18 months?







## Refurbishment and integration challenges

<b>Condition of existing facilities</b>	<ul style="list-style-type: none"> <li>□ The condition of existing facilities, and the extent of refurbishment required, is often not fully known until the contractor starts stripping back the existing plant</li> <li>□ Structural issues with the existing plant may not be immediately identifiable, and may impact the commercial or technical viability of a project</li> </ul>
<b>Contamination and unforeseen site conditions</b>	<ul style="list-style-type: none"> <li>□ Brownfield sites are often subject to contamination, the removal or remediation of which can be costly, particularly where the removal of the substance or material is subject to regulatory requirements (for example, asbestos)</li> <li>□ Brownfield sites can be more difficult to survey geotechnically, particularly where new plants have different load requirements and/or layouts</li> </ul>
<b>Certainty of pricing</b>	<ul style="list-style-type: none"> <li>□ Generally difficult to price on a fixed lump-sum basis</li> <li>□ Reimbursable pricing structures have little cost certainty for owners, and can be difficult and time-intensive to manage</li> </ul>
<b>Performance guarantees</b>	<ul style="list-style-type: none"> <li>□ Contractors are unlikely to provide robust performance guarantees where a new plant is combined with or reliant on parts of an existing plant that have not been refurbished</li> </ul>
<b>Technology licensing</b>	<ul style="list-style-type: none"> <li>□ If a retrofit is only partial, then adjustments to the original process plant and/or combination of the original process plant with new technologies and/or low-carbon power sources may also breach technology license arrangements</li> </ul>
<b>Operational challenges</b>	<ul style="list-style-type: none"> <li>□ Issues around operations team delaying and/or disrupting the construction contractor (and vice versa)</li> <li>□ Delays in construction may directly cause additional downtime to the plant, losing revenue and impacting offtake arrangements</li> <li>□ Insurance issues around carrying out construction works during the operations phase of the project life cycle</li> </ul>
<b>Utilities and ancillary infrastructure</b>	<ul style="list-style-type: none"> <li>□ New technologies may require the addition or removal of connection points, consumption capacities or ancillary infrastructure, for example, if a metal plant is moving from coking coal-fired furnaces to electric arc furnaces</li> <li>□ Changes to utilities and ancillary infrastructure are likely to require the consent of government regulators, and may be restricted by wider physical constraints, such as a lack of local grid capacity to accommodate energy-intensive electrified solutions</li> </ul>
<b>Financing</b>	<ul style="list-style-type: none"> <li>□ Cost and time uncertainty, and risks related to performance guarantees, mean that refurbishment projects are difficult to finance off-balance sheet</li> </ul>



## Whether an expansion, add-on or complete revamp, the integration of an existing project with new works is intrinsically more complicated than a new-build

The specialized nature of these works should be acknowledged by owners, who should ensure that procurement processes include thorough technical prequalification processes to avoid owners having to make unfair comparisons between commercial offers from specialized contractors and unsuitable contractors. Contractors with existing familiarity of the site, for example the original contractor, may also rightly be preferred, as they are likely to know the plant better and be better able to manage and price the more uncertain parts of the scope of works.

Having the right owner's team is also critical. The interaction between the construction and operations teams, as well as potentially the interaction between the different contractors if works are not done under a single engineering, procurement and construction (EPC) turnkey contract, requires the owner to have a properly resourced project management team. The specialized nature of these works and the coordination required is likely to warrant bringing in an external project management consultant or EPC management contractor to manage the process, rather than relying on an owner's regular operational procurement team.

To the extent that they are physically feasible, site surveys are key to better understanding and, where possible, quantifying issues posed by existing site conditions, particularly contamination. Site remediation works are often a daunting task, and something that countries with expansive land compared to populations can often sidestep by developing greenfield land.

Globally, remediation works experience is perhaps strongest in places with large populations and small land masses, such as Singapore and Taiwan, where construction on brownfield sites has long been essential. As the energy transition spurs the renewal and refurbishment of existing facilities, engineering expertise from these jurisdictions may be leveraged more widely.

Uncertainty as to scope and site conditions invariably leads to difficult discussions around remuneration. Sampling is one contractual mechanism that can be used to create some balance between the parties where the condition of an existing plant is not clear until stripping works have been completed. In a sampling mechanism, the parties may agree upon a price based on a number of samples taken from, or sample stripping carried out on, the existing plant.

Another mechanism can be to agree to a schedule of rates, with different rates payable depending on what kind of underlying conditions are discovered following the stripping back of the existing plant, with an initial price developed based on a set of assumptions around the condition of the existing plant. While these mechanisms will not achieve a fixed lump-sum price of the kind usually seen in traditional EPC contracts, depending on their structure they can create clear capital expenditure ranges for a project. This can make it easier for a project to craft a non-balance-sheet financing solution or justify to lenders a limited level of sponsor support.



Alternatively, parties may agree that certain elements of the works will be carried out on a reimbursable cost-plus basis. This may be reasonable, depending on the level of uncertainty regarding the nature and extent of the works, as well as the state of the contractor market. However, if this is agreed upon, owners should be careful to draft clear and objective requirements into their contracts as to how reimbursable prices are calculated.

This would normally include ensuring that the contractor is



tendering subcontracts and generally achieving value-for-money for the owner, and also that contractor overhead and profits are not being double-counted, for example under subcontracts with affiliates. As far as possible, owners should also ensure that reimbursable cost contracts include incentives on the contractor to incur costs in a reasonable and efficient manner.

Robust performance guarantees are difficult to achieve where the performance of refurbished works is dependent on pre-existing

plants and equipment. Where technically and commercially appropriate, a way around this can be to have the contractor also refurbish or replace the pre-existing plant and equipment.

Perhaps more fundamentally from an owner liability perspective, owners should make sure that the refurbishment and adjustment of the existing plant, and the potential combination of the plant with new technologies, does not create any intellectual property and technology license issues, either with existing process licensors on whom the plant depends in order to run, or with any licensor of any new technology being brought into the plant. The existing and proposed license arrangements should be subject to careful legal and technical review before any project is commenced to refurbish a plant to accommodate new low-carbon technology or fuel solutions.

Similarly, where changes are required to a plant's utilities and ancillary infrastructure in order to accommodate a low-carbon solution, owners should investigate at an early stage whether any such changes are feasible. As part of the feasibility assessment, owners should consider the associated regulatory process for any required changes, as these processes can be timely and not fully within the owner's control, and may well impact the critical path of the project.

Refurbishment works are often scheduled during planned downtime, or during periods or seasons when the price for the plant's offtake is expected to be lower. In any case, the construction contract should

include clear dates for completion, incentivized by delay liquidated damages, in order to try and ensure that disruption to operations and plant revenues are minimal. If technically feasible, sectional completion may also allow parts of the plant to be completed, handed back to the owner and returned to operations, while the remaining refurbishment works are completed.

### **Moving to a low-carbon and circular economy**

The momentum to find ways to reduce carbon emissions shows no sign of abating, and as the electrification of vehicles and the reduction of gasoline and coal use becomes more widespread, the focus will invariably shift to industrial emitters, such as metals and other process plants, which constitute a remarkably high and often overlooked proportion of global carbon emissions.

With a focus on creating a circular economy, and a growing focus on decarbonization of hard to abate industries, the expectations of the recent energy transition survey are sure to play out, particularly in relation to energy-intensive process plants, forcing owners of metals and other process plants to tackle the challenging task of carrying out construction works at brownfield sites.

There are a variety of imperatives pushing companies to make these capital investments now. While daunting, proper procurement and planning, well-prepared construction contracts and astute project management can ensure that these complex projects are a success.



**As the momentum to reduce carbon emissions gathers pace, the focus will invariably shift to industrial emitters, which constitute a remarkably high and often overlooked proportion of global carbon emissions**

# Building toward net-zero

As the urgency to combat climate change escalates, the construction and engineering sectors are stepping up to the challenge. With a growing emphasis on net-zero solutions, contractual provisions tailored to sustainability are gaining momentum, highlighting a pivotal shift toward greener practices within these industries, as **Richard Hill** discusses

The infrastructure and construction industry is responsible for 79 percent of greenhouse gas emissions worldwide, according to the United Nations (UN). Despite continuous talk about ways to address the climate crisis, in a 2022 report on building and construction, the UN Environment Programme–hosted Global Alliance for Buildings and Construction concluded: “The gap between the actual climate performance of the sector and the necessary decarbonization pathway has been widening since 2018.”

The construction industry will play a key role in supporting the achievement of the UN’s sustainable development goals and the 2015 Paris Agreement on climate change, and industry decision-makers are increasingly looking to construction contracts to mandate and promote climate change goals, and to mitigate the related consequences associated with construction projects.

While, historically, operative contractual provisions seeking to allocate liability for harm to the environment appear within standard-form construction contracts, there is an increasing desire to include provisions within contracts specifically relating to climate change and net-zero solutions.

## The status quo: FIDIC

A number of standard-form construction contracts already include environmental protection clauses.

In the widely used Fédération Internationale Des Ingénieurs-Conseils (FIDIC) contract forms, as published in 1999 in its Red, Yellow and Silver Books, sub-clause 4.18

requires contractors to take “all reasonable steps to protect the environment (both on and off-site)” and to “limit damage and nuisance to people and property resulting from pollution, noise and other results of [the contractor’s] operations.”

If the contractor fails to take “all reasonable steps,” the contractor will be in breach of its obligation. Additionally, the contractor must ensure that emissions and other pollutants from its activities will not exceed those set out by the FIDIC or prescribed by applicable laws.

Under these terms, even if the specification or employer’s requirements do not indicate any values, the contractor is nevertheless required to ensure its emissions do not exceed the values prescribed by law. These requirements expressly apply to the contractor’s activities and so will not apply to the operation of the works after handing over to the employer.

The *FIDIC Contracts Guide* (published in 2000) suggests that matters such as emissions requirements for contractor-designed works should be specified

in the employer’s requirements and could form part of the tests after completion. To the extent these requirements are covered by the contractor’s obligations—in particular the obligation to “design, execute and complete the works in accordance with the contract”—then a failure may mean the works are not complete for the purposes of taking over, or could constitute a defect under sub-clause 11.1, which addresses completion of outstanding work and defects that the contractor will be required to remedy.

The 1999 books also contain a corresponding obligation on the employer to ensure that the employer, the employer’s personnel and the employer’s other contractors onsite cooperate with the contractor’s efforts under sub-clause 4.18.

Although sub-clause 4.18 does not include an express environmental indemnity, environmental damage resulting from “pollution” or “the results of [the contractor’s] operations” are addressed, at least in part, by indemnities set out in sub-clause 17.1. These cover areas including third-party claims,



**The construction industry will play a key role in supporting the UN’s sustainable development goals, and the decision-makers are increasingly looking to construction contracts to mitigate related consequences associated with construction projects**



damages, losses and expenses with respect to bodily injury, sickness, death or disease, and damage to or loss of property.

Sub-clause 4.18 was updated in the 2017 edition of the FIDIC's Red, Yellow and Silver Books. The revised clause is similar to that in the 1999 edition, but amends and expands the contractor's environmental obligations by requiring the contractor to "take all necessary measures" to protect the environment, comply with any environmental impact statement for the works, and limit damage and nuisance to people and property resulting from pollution, noise and other results of the contractor's operations and activities. The corresponding obligation on the employer under sub-clause 2.3 has also been retained.



**79%**

The infrastructure and construction industry is responsible for 79% of greenhouse gas emissions worldwide, according to the United Nations (UN)

### The JCT's supplemental provisions

The Joint Contracts Tribunal (JCT) Design and Build Contract (2016) includes supplemental provisions that apply unless otherwise stated in the contract particulars. Similar provisions can also be found in other JCT standard-form contracts.

Under supplemental provision 8.1 (sustainable development and environmental considerations), the contractor is encouraged to suggest economically viable amendments to the works that "may result in an improvement in environmental performance in the carrying out of the works or the completed works." The use of the word "encouraged," though, does not place any binding obligations on the part of the contractor.

Under supplemental provision 8.2, the contractor is required to provide the employer with all information as reasonably requested and with respect to the environmental impact of the supply and use of materials and goods that the contractor selects. However, any requirements in relation to the contractor's selection of materials and goods are notably absent from the provision.

Additionally, under supplemental provision 9.1 (performance indicators and monitoring), the contractor's performance is to be monitored and assessed by reference to any performance indicators stated or identified in the contract documents.

Supplemental provision 9.3 requires a contractor to submit proposals to the employer for improving its performance against any of these performance indicator

targets, which may not be met with the consequences of any failure by the contractor to meet any performance indicator targets left for the parties to determine and on which to agree.

### How the NEC handles environmental provisions

The New Engineering Contract (NEC) is another popular standard-form construction contract. Like the JCT contract, the NEC4 Engineering and Construction Contract (ECC) includes key performance indicators—an aspect of performance by the contractor for which a target is to be stated in an incentive schedule.

The contractor is responsible for reporting its performance against each of the key performance indicators from the project start date to the issuance of the defects certificate. If the contractor achieves or improves upon the target, it will be paid the relevant amount stated in the incentive schedule; if it fails to achieve a target, it is required to submit a proposal to the project manager. As drafted, liquidated damages or reductions to amounts otherwise due under the contract do not apply in case of a contractor not meeting a target, but the parties are free to provide for these if they wish.

Option X21 of the NEC4 ECC is a whole-life cost provision, permitting the contractor to propose changes to the scope in order to reduce the cost of operating and maintaining an asset over its whole life, such as through energy-saving practices or technology.

When a quotation to reduce the costs of operating and maintaining an asset is accepted, the project manager will then change the scope, the prices, the completion date and key dates accordingly, and accept the revised program. However, as drafted, the change to the scope is not classified as a compensation event.

The NEC is continuing to update its contracts to recognize the challenges of climate change, and it recently published secondary option X29 climate change clauses, which are intended to “reduce the impact of the creation, operation, maintenance and demolition of the works on climate change.”

The X29 clauses introduce climate change requirements, which the

contractor is required to comply with in order to complete the works in accordance with the scope, as well as a requirement for the contractor to provide a climate change plan as to how it intends to meet these climate change requirements.

A failure by the contractor to meet the climate change requirements constitutes a breach of its obligations. If the contractor’s failure relates to the works, this will constitute a defect, and the contractor will be required to correct it. If the failure relates to how the contractor is to provide the works—and any constraints on working practices—this would not constitute a defect but would still need to be addressed.

The NEC suggests that the climate change requirements could specify, for example, levels of recycling, use of renewable power on-site, use of electric vehicles, reducing waste generation, or designs that reduce carbon emissions. However, it also advises that the requirements should be achievable and not place too much risk on the contractor.

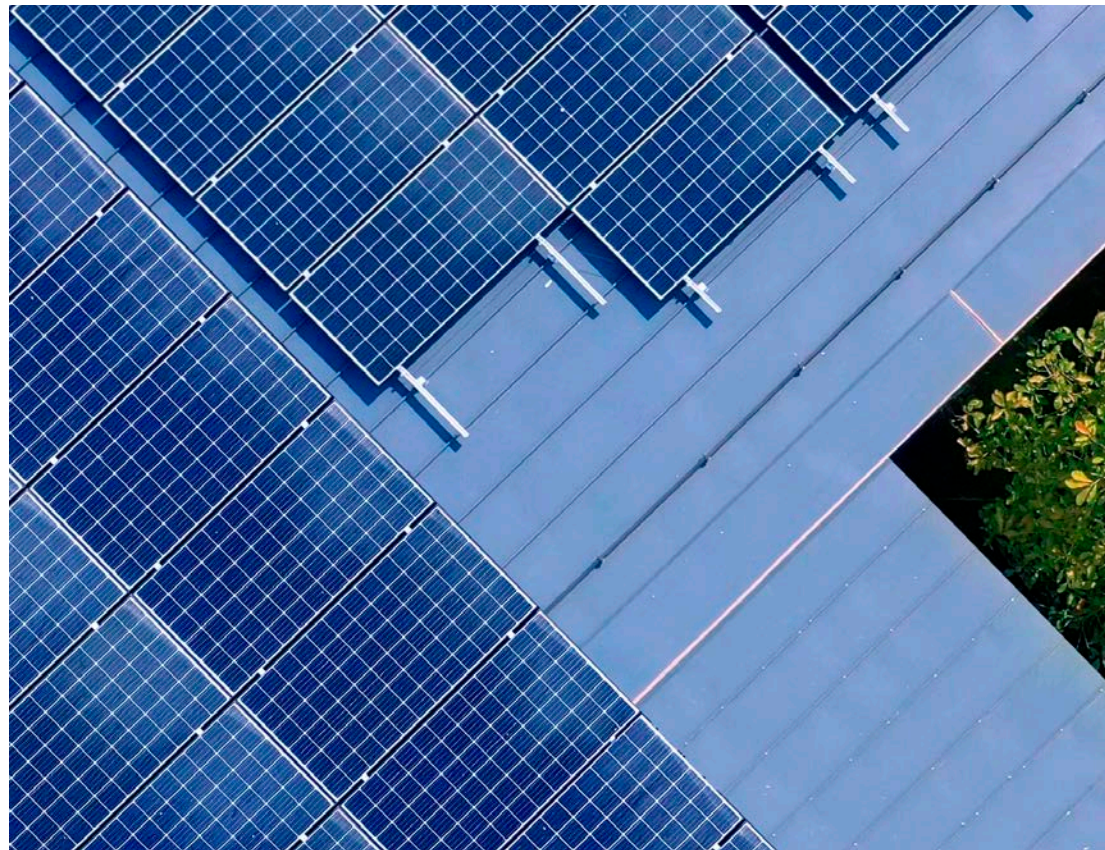


## TCLP

The Chancery Lane Project is the largest global network of lawyers and business leaders using the power of climate contracting to deliver fast and fair decarbonization

The X29 clauses also provide an option for the inclusion of a “performance table” against which the contractor’s performance will be measured, enabling the client to set financial incentives to encourage the contractor to achieve stated performance targets—with the option of including positive or negative financial incentives. As drafted, the contractor is responsible for reporting its performance against the targets in the performance table. The method and rules used to compile the performance table are left to be determined, but the targets are likely to be set by the client.

Finally, the X29 clauses permit the contractor to propose changes to the scope in order to “reduce the impact of the creation, operation, maintenance or demolition of the works on climate change,” which may include changes to the climate change requirements themselves. This process requires the mutual agreement of the contractor and the project manager.



When a quotation to reduce the costs of operating and maintaining an asset is accepted, the project manager will then change the scope, the prices, the completion date and key dates accordingly, and accept the revised program. Again, as drafted, the change to the scope is not classified as a compensation event.

### **Green plug-ins: the Chancery Lane Project**

Aside from the standard-forms, the Chancery Lane Project (TCLP), a collaborative initiative of more than 3,100 legal and industry professionals across 335 organizations in 113 countries, has produced a set of new contractual model clauses seeking to deliver climate change solutions including a few for contracts within the construction sector. Each clause is named after one of the children of the lawyers who have helped draft it.

A number of these clauses are tailored specifically for construction and engineering contracts, and aim to provide a practicable

method to promote and embed climate change solutions.

“Ashkan’s Clause,” which relates to sustainable on-site working practices, incentivizes the contractor to comply with a contractual schedule of green working practices by way of payments from a “green retention fund.” The green retention fund is a percentage amount of the contract price, to be agreed between the parties, which the contractor may be entitled to be paid.

However, as drafted, it is unclear how the green retention fund will be funded and what impact it could have on the project cost and the contractor’s price for

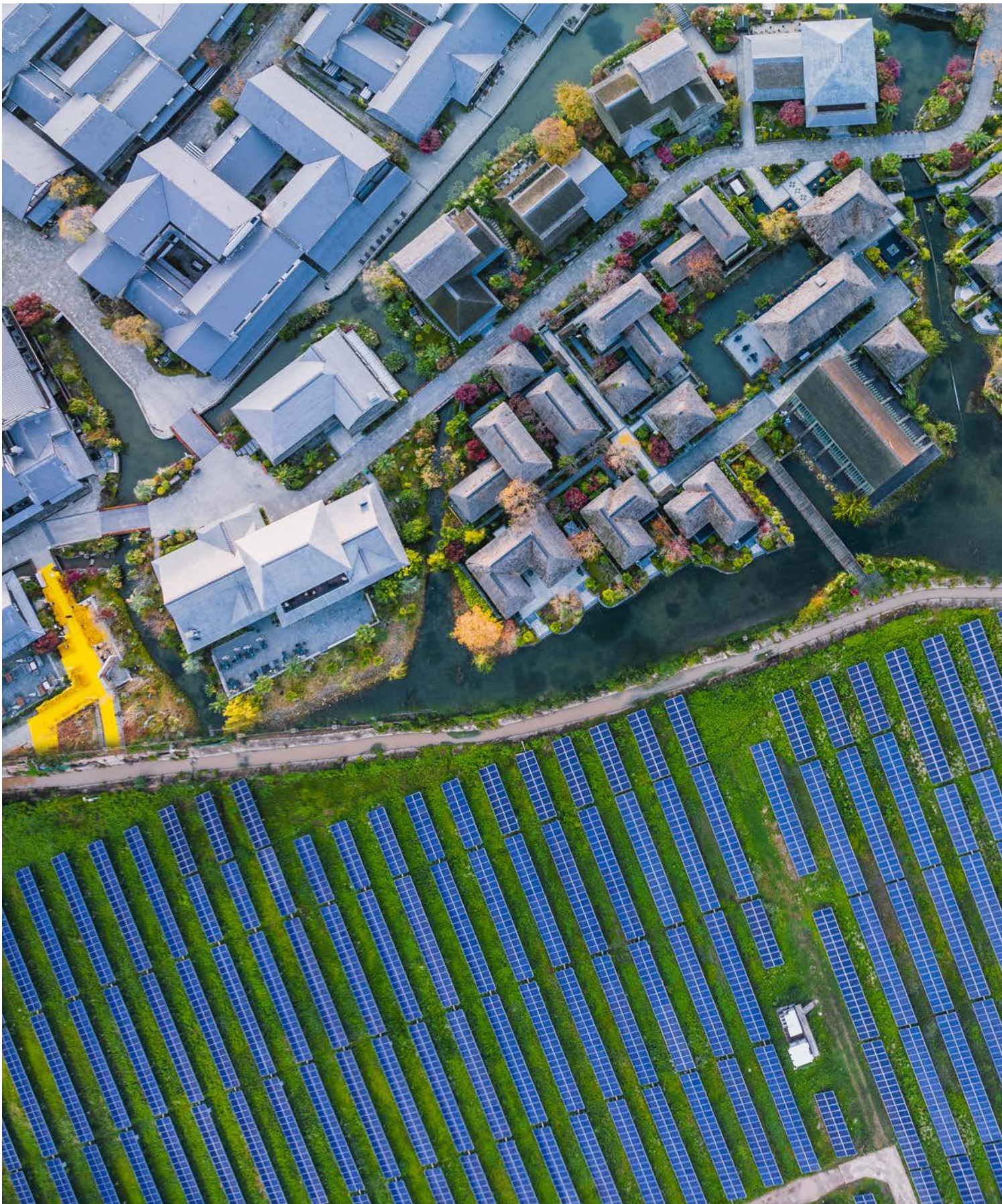
the works. According to sub-clause 3.2, payment is made on a sliding scale depending on the level of compliance that the contractor demonstrates during the course of the works. At practical completion, the balance of any retention will be distributed to an agreed-upon climate-focused charity, making the clause revenue-neutral for the employer.

While parties can negotiate their own green working practices, TCLP’s suggested schedule includes requirements as to usage of energy-saving lighting, savings in usage of water and re-usage of materials on-site.



**A failure by the contractor to meet the climate change requirements constitutes a breach of its obligations**









“Ayshe’s Clause” seeks to support transparency in supply chains for renewable energy-generating assets. The clause requires developers, manufacturers, installers, contractors and any other parties involved in the renewable energy, technology, transport, mining and manufacturing supply chain to reduce greenhouse gas emissions and environmental pollutants; to safeguard against modern slavery; and to minimize environmental impacts. The clause has multiple uses and, as well as construction and engineering contracts, can be incorporated into power purchase agreements, joint venture agreements, supply agreements, and sale and purchase agreements.

“Edgar’s Clause” promotes nature-oriented solutions and biodiversity on land that might otherwise be used in environmentally detrimental and unsustainable ways, while “Estelle’s Clause” seeks to align projects with the goals of the Paris Agreement to ensure that during construction and on completion, the project meets net-zero objectives. The clause amends the standard of care to be exercised by a contractor or service provider to include best industry practice to mitigate climate change risk, to ensure in turn that the project achieves its green objectives.

“Francis’s Clause” requires a contractor to produce a site waste management plan for intended works and provides for key performance indicators to incentivize the contractor to reduce waste and ensure resultant greenhouse gases are minimized.

Meanwhile, “Izzy’s Clause” introduces a mechanism that benchmarks a contractor’s carbon footprint against what is feasible in the market. Should the contractor fail to meet the minimum greenhouse gas emissions target

for any year, the employer can request a comparison between the contractor’s performance and the wider construction industry, and such failure may result in financial penalties for the contractor.

The benchmarking exercise is to be determined by a climate professional engaged by the employer, and the market benchmark is to be determined by data or information from sources such as: other contractors or suppliers of deliverables or services available in a comparable market and for a comparable project; a reasonably reputable source; testing the market; or a combination of all three. As drafted, it is unclear whether the market benchmark is fixed, or whether it can be updated during the course of a project.

“Luna’s Clause” encourages contractors and employers to provide more sustainable construction solutions. The contractor is incentivized to propose net-zero modifications to the works and, in turn, may be entitled to an extension of time to the completion date and additional remuneration arising from any accepted net-zero modifications.

“Mary’s Clause” amends the JCT’s standard design-and-build form of contract to require the contractor to achieve specific standardized energy efficiency requirements at the practical completion of new-build and renovation projects. “Madhavi’s Clause” also amends existing practice, taking the sustainable practices and net-zero-aligned provisions in the TCLP’s construction clauses and adapting them for modern methods of construction (MMC). It enables parties to embed their vision of sustainability through the use of MMC within contracts, while simultaneously achieving the cost and efficiency benefits associated with MMC offers.



**TCLP has clauses that are tailored specifically for construction and engineering contracts, and aim to provide a practicable method to promote and embed climate change solutions**

“Olivia’s Clause” introduces a new clause for inclusion in the FIDIC Conditions of Contract for EPC/Turnkey projects—the Silver Book—by incentivizing the contractor and any subcontractors to act sustainably in carrying out the works by setting targets to reduce greenhouse gas emissions. The contractor can benefit from being paid the full premium under the contract if it meets certain benchmarks. The clause also contains an option to cascade the obligation where the contractor employs subcontractors.

“Rose’s Clause” is tailored for use in the project finance market in particular, and provides for: conditions precedents; representations and warranties; covenants; and events of default to address climate risks both during the construction and operations phase of a project. Should a party materially fail to meet these expectations, it is required to propose and take remedial measures, and failing which, a right to early termination and early loan repayment would arise.

Finally, “Tristan’s Clause” sets a carbon budget for projects using the JCT Design & Build Contract 2016. The clause imposes liquidated damages if the budget is exceeded, and stipulates that the contractor is to provide monthly management information on its ongoing compliance to enable the employer to assess the progress of the works toward meeting the carbon budget. The rate of liquidated damages for breach is based on the cost of offsetting any excess carbon emissions and/or remedying an employer’s breach up the contractual chain.

“Robyn’s Questionnaire,” also produced by TCLP, helps organizations to assess their subcontractors’ and suppliers’ climate change risk credentials. The intention is to track and drive continual progress toward net-zero, so that the subcontractor or supplier is aware of and incentivized to meet the best practice position and expectations.

### Key risks and considerations

Establishing the overall climatic impact of a large construction project is difficult. The task requires significant upfront planning and investment, particularly where the impact is not limited to the works themselves but spreads across the

entire supply and delivery chain. Indirect, or “scope 3” emissions account for a significant proportion of the overall carbon emissions from a project, but can be difficult and costly to monitor in practice.

A number of the green provisions in standard-form construction contracts are contingent on the requirements of local environmental laws and protections. As a result, for larger, more complex projects, it can be difficult to determine precisely which requirements need to be met, which metrics ought to be adopted and whether the benchmarks are likely to change throughout the course of the project.

While a number of the green provisions provide for a set of contractual requirements, they do not prescribe the framework against which compliance will be measured and certified. Instead, this is often left to the parties themselves to determine, monitor and verify.

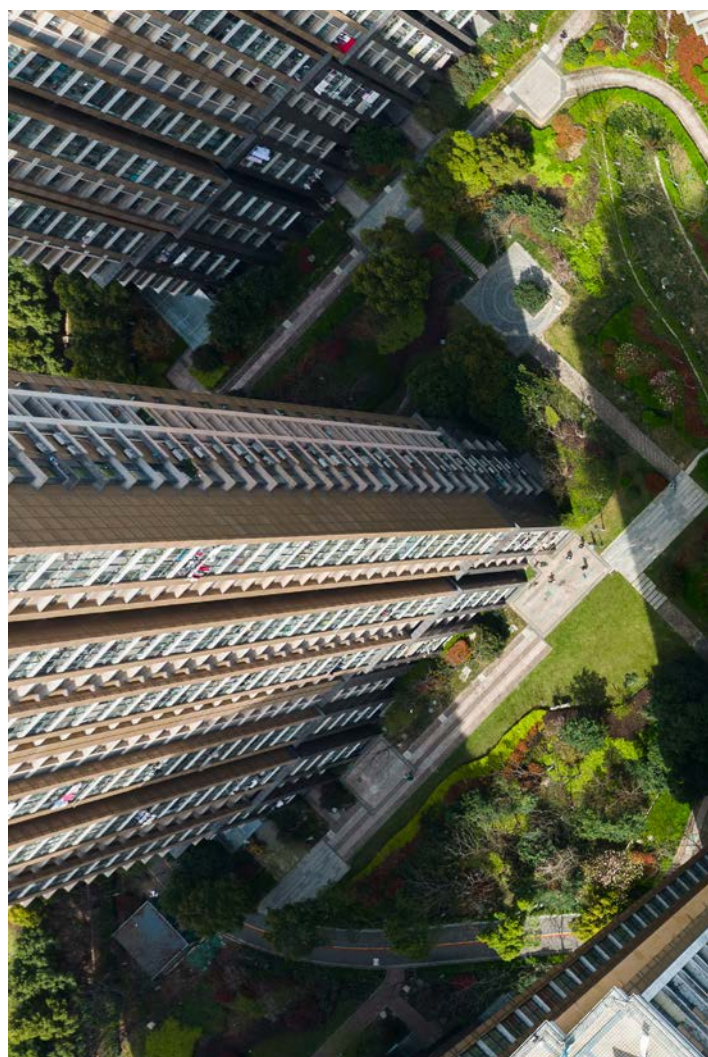
### Standardizing rating and certification

Parties are increasingly adopting internationally recognized standards for rating and third-party certification, and independent rating and certification tools are increasingly provided for in bespoke contracts, and by way of amendments to the various standard-form construction contracts.

Examples of rating systems include the UK-developed Building Research Establishment Environmental Assessment Method (BREEAM), which provides a science-based suite of validation and certification systems, and sets a benchmark standard for sustainable building design, construction and operation.

The Leadership in Energy and Environmental Design (LEED) system was developed in the US and provides a holistic system for implementing green building design, construction, and operations and maintenance, as well as third-party verification of green buildings.

Separately, the Greenroads Rating System, a sustainability rating system for transport projects, challenges project teams to go above and beyond minimum environmental, social and economic performance measures and to evaluate projects through independent, third-party review.

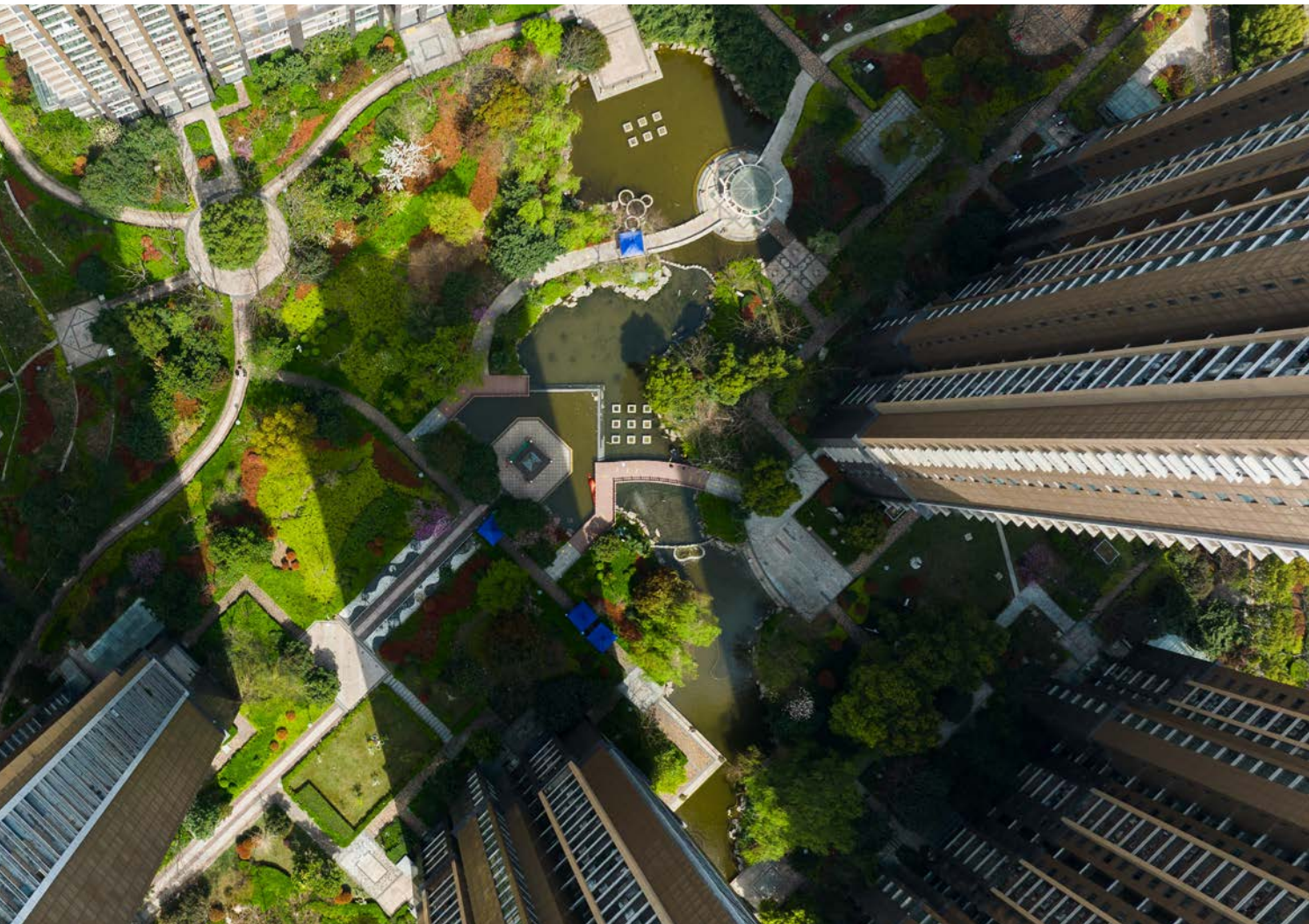


A number of projects have already adopted these assessments as part of their project vision. For example, Expo 2020 Dubai completed eight BREEAM Infrastructure assessments achieving CEEQUAL Excellent for its permanent infrastructure assets in its bid to become the most sustainable World Expo in history.

BREEAM was also recently used on the “Viking Link,” a 1,400 MW high-voltage direct-current electricity link between the British and Danish transmission systems, with the project also achieving a CEEQUAL Excellent Sustainability Rating.

### The cost of new environmental legislation

Given the prevalence of competitive tendering processes as well as competition for available resources, bidders look to ensure adequate protection against the cost of any



new environmental legislation that may be introduced during the course of a construction project. Where climate change or other “green” requirements are perceived to be unduly onerous on contractors, or too costly to comply with, in extreme circumstances, this can lead to bidders refusing to bid for the work at all.

While the green provisions in the standard-form construction contracts have been relatively limited in terms of their scope and effect to date, the industry is increasingly aware of the role it plays in identifying and implementing sustainable practices in achieving project visions. The FIDIC has publicly acknowledged that it is in a unique position to influence the key stakeholders in the industry.

Obligations to comply with requirements relating to climate change as well as ESG more



**While the green provisions in the standard-form construction contracts have been relatively limited in terms of their scope and effect to date, the industry is increasingly aware of the role it plays in identifying and implementing sustainable practices**

generally are becoming a key consideration for industry decision-makers, in particular lenders and investors.

Construction contracts provide an obvious framework within which parties can establish and realize greener and more sustainable ways of working. While the market has yet to determine and adopt an objective and standardized carbon benchmark

regime, parties are adopting internationally recognized standards for rating and third-party certification and, although the cost of achieving compliance with green requirements remains an obstacle for some bidders, addressing the issues is no longer optional, and construction contracts can offer the flexibility to include financial incentives to ensure targets and goals are delivered.

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# Energy and infrastructure project risks concerning escalation

In recent years, escalation and price volatility have re-emerged in the global economy. The impact on large energy and infrastructure projects will be significant: Owners and contractors need to react and adapt, say **Jonathan Brierley, Callum Johnson and Primrose Tay**

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**A**fter two decades of low inflation globally, in the past few years, supply chain disruptions and energy shocks caused by COVID-19 and the war in Ukraine have led to huge price spikes and fluctuations in the cost of multiple construction inputs—from material and labor costs to energy, shipping and fuel.

This has a profound impact on large projects, where higher budgets and longer durations mean there are more costs to escalate, and a longer period of time in which they can do so. It could be ten years between the date that a final investment decision is made on a multibillion-dollar mega energy project, for example, and the date that it starts operations. If escalation over that period significantly exceeds the parties' initial expectations, then the resulting cost overruns could amount to tens or hundreds of millions of dollars.

The impact of price changes in certain inputs can also be particularly significant on sectors where there is intense competition for resources. A recent McKinsey & Company analysis found that a high concentration of new LNG projects around the US Gulf Coast—where more than 70 percent of all pre-final investment decision US LNG projects are located—had led to competition over a limited pool of local resources and contractors, and contributed to a 10 to 20 percent cost increase for such projects since the pandemic began.

This impact can also be seen where specific inputs make up a larger proportion of the contract price. In 2021, the International Energy Agency estimated that



**A common way to account for escalation during the works is via an escalation clause, which provides a mechanism for the contract price to increase—and sometimes decrease—in line with prices**

almost 12 percent of the cost of an onshore wind project was accounted for by the cost of freight and steel, and the total onshore wind investment cost change between 2019 and 2021 for these two inputs exceeded 15 percent. While more recently prices of key inputs have cooled, leading to a resumption in the downward trend of costs for many renewable energy projects, such significant price fluctuations can have a major impact on project budgets.

Parties must consider how escalation is treated under their contracts in order to understand their exposure.

## **Managing escalation risk through fixed-price contracts**

Under a traditional lump-sum EPC contract, the cost of escalation is borne by the contractor, unless it has a contractual entitlement to be paid for escalation. This will also be the case if the contractor is paid on a re-measurable or time and materials basis with fixed unit rates, where its entitlement to payment varies depending upon the quantity of units installed or expended, rather than on the cost of those units.

In the past, contractors have been able to manage escalation risk by, for example, locking in fixed prices with labor and subcontractors, buying materials early, and including an allowance for escalation in their project contingency.

However, given recent price volatility, these measures may no longer be as effective. Fixed pricing in the supply chain can be harder to achieve and maintain, given subcontractors and suppliers will also want to protect themselves from future cost increases.

While materials can be purchased in advance, the precise requirements for the project will not be clear until the design and procurement is sufficiently progressed, which, on a large project, can take several months or even years. Bulk buying early may also lead to increased material handling and storage costs, and, when prices are volatile, could simply bake in higher prices just before a fall.

Any greenfield or other union agreements may include cost escalation clauses, providing for labor rates to increase in line with an applicable index. On projects that are delayed or have a long duration, these agreements could

expire before the project completes, leading to new, higher wage settlements mid-project. Strikes and labor disputes are also more likely in an inflationary environment, as workers seek pay increases to maintain their real wages.

Given these difficulties, contractors may be increasingly unwilling, or unable, to accept escalation risk in a traditional lump-sum or re-measurable contract, without pricing in a level of contingency that owners cannot accept. In certain circumstances, and particularly in the case of longer-term projects with high capital expenditures, parties may therefore need to consider ways of accounting for escalation in the contract price.

### Providing for escalated costs to be payable

A common way to account for escalation during the works is via an escalation clause, which provides a mechanism for the contract

price to increase—and sometimes decrease—in line with prices. These adjustments are usually calculated by reference to applicable indices, though parties might also agree to compare actual prices paid to those anticipated in the contractor's tender.

Escalation clauses are included in some of the most commonly used standard-form contracts. For example, the FIDIC Silver Book 1999 and 2017 editions provide for adjustments to be made to the contract price where there are "rises or falls in the cost of labor, goods and other inputs to the works," if the parties make provisions in the particular conditions for escalation.

In both the NEC3 and NEC4 contracts, the relevant wording is found in option X1, "price adjustment for inflation." If parties select this option, then the contractor's payments are adjusted using a price adjustment factor, which is calculated using price indices.



**12%**

The IEA estimated that the cost of freight and steel accounted for almost 12% of the cost of an onshore wind projects in 2021

The details of the indices and items to which they are linked are left for the parties to agree upon and include in their contract.

Where an adjustment to the contract price is claimed under an escalation clause, or when negotiating the wording of such a clause, it will be important to consider a number of issues.

Firstly, parties to the contract should make sure they know precisely what types of costs fall within the ambit of the clause. The costs of labor, materials and equipment are often treated differently under escalation provisions, but it is not always obvious which precise types of costs fall under escalation provisions, and disagreements can arise over the meaning of the particular words used.

For example, when considering escalation clauses relating to labor costs, courts in England have previously decided that a "wage" did not include holiday pay, while Australian courts have found that an "average weekly wage" could include sick leave. If certain costs are, or are not, intended to be subject to escalation, then that should be made clear when drafting the clause.

Parties should be clear when escalation should be assessed and claimed. Parties often agree to a certain trigger for an escalation claim, which must occur before a claim can be made. This trigger could be a particular point in time, or the point at which costs fluctuate beyond a specified percentage. If the trigger is based on changes in cost, parties should consider whether to base this on changes in a particular index, or on actual costs incurred on the project; and whether (and how) the contractor is required to demonstrate that its actual costs have deviated from its original estimate.

Escalation clauses often provide for adjustments to be made in accordance with an algebraic formula or other methodology, which can be detailed and complex. Errors or inconsistencies in the drafting of these adjustment formulae can render the clause unworkable.

While courts and tribunals will generally try to give effect to contractual terms, if they are





unable to do so, then, depending on the overall construction of the contract, that may lead to a variety of outcomes, from prices remaining unadjusted, to the contractor being paid a “reasonable price,” or the whole contract being found to be void for uncertainty.

Escalation formulae often use rates taken from price indices as inputs. In order to ensure that any adjustments to the contract price reflect actual changes to the cost of the work, it is important that the parties select indices that are appropriate for their project. A general consumer price index is unlikely to accurately reflect the cost escalation that affects a construction project, and a construction-specific index that applies to an entire country might not be a good gauge for price fluctuations in the particular region where the works take place.

Indices tracking the price of particular commodities might also not reflect the price of a specific material under a contract, as the latter would need to account for

the cost of manufacturing and transport, and not just the cost of the raw material itself. Indeed, given the impact of recent events on global shipping routes and prices, parties might consider carving out the cost of international logistics from other cost components in their escalation provision.

Finally, if the parties intend for the contractor to bear escalation costs attributable to its own default, then this should be expressly stated. In the 2017 FIDIC Silver Book, for example, if the contractor fails to comply with its obligation to complete on time,

then adjustments for escalation thereafter are made on the basis of either: the prices that were applicable shortly before the completion date; or the current price index, whichever is more favorable to the owner.

If contractor culpability is not addressed in the escalation clause, then disagreements may arise, as owners argue that contractors cannot recover costs incurred through their own default, while contractors claim that, absent an express exclusion, escalation should apply whenever costs are incurred.

#### **Where escalation is not dealt with under the contract**

While contracts will often expressly state how escalation costs are dealt with, that will not always be the case, particularly for ongoing projects where contracts were agreed upon during periods of low and stable inflation, when escalation was not such a concern.

If the contract does not give the contractor an express right to claim escalation costs, the general



**One way to reduce price uncertainty on a long project could be for the parties to agree to a split-payment provision**



position under English law (and related common law systems) is that it has no right to escalation costs. In civil law systems, the position will depend on the provisions of the applicable civil code, but escalation costs can be excluded—or, at least, very difficult to recover—under some systems commonly used on international projects.

For example, article 373(1) of the Swiss Civil Code states that, if payment is “fixed in advance as an exact amount,” then the contractor must perform the work for that amount and “may not charge more even if the work entailed more labor or greater expense than predicted.” While the article provides exceptions to this general rule where there are exceptional and unforeseen circumstances that seriously hinder the contractor’s performance, it can be difficult to establish that these exceptions apply in practice.

Contractors may therefore attempt to claim escalation via the contractual variation or claims mechanisms. How these claims

are presented typically differs depending on whether the costs relate to base or change scope.

Where the costs relate to change scope, contractors usually aim to have their escalated costs included in the valuation of the change. Contracts sometimes provide for variations or claims to be valued by reference to contractual rates, but allow for a valuation by reference to market rates, or actual costs, where the contractual rates are no longer appropriate or are not specified. A contractor could therefore argue that high escalation means that the original contract rates are no longer appropriate for valuing change.

To claim escalation costs impacting base scope, contractors would likely rely upon the contractual claims mechanism. Where a contractor is entitled to an EOT and associated costs, it may argue that escalation costs of completing delayed base scope should be included, as it is now obliged to complete that work later than planned.



**10 - 20%**

A recent McKinsey & Company analysis found that a high concentration of new LNG projects around the US Gulf Coast had led to competition over a limited pool of local resources and contractors, and contributed to a 10 to 20% cost increase for such projects since the pandemic

Contractors may argue that escalation caused by trade disruption related to sanctions regimes, or other regulatory changes, is recoverable under change-in-law provisions. Failing all else, contractors could seek relief for force majeure, or argue that the cost of performance has become so onerous that they should be relieved from performance entirely under the common law doctrine of frustration, or similar concepts in civil law jurisdictions.

However, the bar for such forms of relief is high: The English courts, for example, have held that a “wholly abnormal rise or fall in prices” was insufficient to frustrate a contract, and that price increases will not generally amount to force majeure.

### **Options and points to consider**

When thinking about how to account for escalation, the key considerations for parties will depend on the status of their project. For projects that are still pre-contract, the focus

should be on how best to allocate the risk of escalation and strike the right balance between cost exposure and price uncertainty.

Parties have a number of aspects to consider when evaluating an escalation clause. To start with, they should think about whether the contract price should be subject to adjustment on account of input cost fluctuations in the first place, and if it will be subject to adjustment, whether—and how—those adjustments should account for cost decreases, as well as cost increases.

They should also consider whether any adjustments should be applied to the entire contract price, or only to specified costs or inputs; and whether the owner should take on the full risk of escalation, or whether that risk could be shared with the contractor. For example, the cost of escalation could be split between the parties via a “pain share” mechanism, by setting a cap on the amount of escalation that can be claimed overall, or by setting a

threshold that must be met before any escalation costs can be claimed.

Parties need to also consider how to ensure that the escalation provisions are consistent with other provisions in the contract, particularly the extension of time and claims provisions, and do not allow for the same costs to be claimed via more than one route, or provide relief for events and circumstances that are at the contractor’s risk under the contract.

Alternative means of addressing escalation risk should also be considered, such as including provisional sums for escalation in the contract price, or providing for particular aspects of the work to be priced on different bases.

One way to reduce price uncertainty on a long project, where there is a lag between the date the main contract is signed and the date that key subcontracts or purchase orders are agreed upon, could be for the parties to agree to a split-payment provision,



**80%**

According to Turner & Townsend’s calculations, 80% of fluctuations in construction input costs can be attributed to the volatility of oil and fuel prices

with early works payable on a lump-sum or re-measurable basis, while later works are either priced on a reimbursable basis, or left to be agreed upon subsequently, potentially on an open-book basis.

That way, contractors do not need large contingencies to guard against future cost increases, and owners have some assurance that they will not overpay relative to the actual market conditions at the relevant time.

However, where elements of the contract price will not be set until partway through a project, there is potential for uncertainty and disagreement between the parties.

The cost of later works is impacted by the progress and quality of preceding work, which can lead to disagreements regarding whether particular costs are payable. For example, an owner may object to reimbursing costs, or approving subcontract prices, that are higher in the construction phase of the works due to prior contractor failures in engineering and procurement.





Where different payment bases apply to different elements of the work, this can lead to confrontational dynamics and a lack of alignment between the parties, with owners preferring costs to be treated as incurred in the fixed-price works, and contractors preferring to treat them as reimbursable.

Owners may also seek increased visibility or influence over subcontracting processes that relate to reimbursable portions of the work, which contractors may object to.

### **Think practically amid price volatility**

Where projects are already underway, the priorities of contractors and owners will naturally differ. Contractors will try to recover escalation costs, whether under an escalation clause or as part of a claim. A key challenge for contractors in presenting a compelling claim will be finding a way to segregate escalation resulting from compensable events from escalation incurred

as a result of the contractor's own performance. This is not always easy, particularly where other delay events, or resequencing, can make it difficult to compare the actual resourcing profile of a project with a contractor's original plan.

To understand and respond to these claims, owners should seek evidence of the actual impact of escalation on the contractor's costs. This will entail not only proper substantiation of the actual costs incurred, but a comparison of the actual escalation with the amount of escalation that was already built into the contractor's pricing. That, in turn, will require an examination of the contractor's tender build-up and assumptions, and original as-planned schedule and resource distribution.

While owners will focus on defending such claims, they may also need to think practically. If contracts become unprofitable for parties down the chain, that can cause problems, whether in the form of increased claims, reduced

performance, or, potentially, threats to walk away from the project.

In extreme cases, contractors may be unable to continue with the works, or could become insolvent. In order to successfully complete their project, owners might consider a negotiated settlement, whether that be a temporary or partial restructuring of a contract to a reimbursable payment basis, limited one-off assistance, or some form of incentive scheme.

While these considerations are inherently party and project-specific, it seems clear that price fluctuation will be a major consideration for all large projects over the next few years, particularly energy and infrastructure projects, where long schedules and supply chains, and high material quantities increase both the probability and the severity of price volatility impacts. Parties will need to consider how this risk has been allocated under their contract, and how that risk allocation is likely to affect party behavior and claims going forward.



# Data centers: Can the demands for increased capacity and energy be met sustainably?

As the demand for data storage grows, so does the need for more data centers with ever-increasing capacity. **Richard Hill** and **Sofia Wake-Walker** examine new ways for developers to reduce energy consumption

Data centers have become critical infrastructure for many services that function globally, and yet, at the same time, they are under close scrutiny for their high, and sometimes inefficient, energy consumption. To service the demand and improve the reputation of data centers as a more sustainable resource, developers are looking for new ways to source energy while also reducing each data center's energy consumption.

## Demand for power

Data centers consume about 3 percent of the world's electricity. This substantial energy consumption is set to increase in the future as more data is stored and processed in data centers. The developer and construction industry has shown continued confidence in the growth of data centers. For example, during construction procurement, it is not unusual to see preparatory design, procurement and sometimes construction activities commencing well before an end-user of the data center is secured.

There is also an increase in the frequency of construction contracts

within the sector being split into sections, with multiple options to instruct additional sections to expand capacity if and as additional power is sourced, which further highlights the need for developers to consider alternative ways to source power and reduce energy consumption.

## Key challenges

The focus on reducing energy consumption in data centers is not new; many within the industry are well aware of the need to promote and implement greener and more sustainable ways of operating. This topic has gained increasing attention and momentum recently, brought about in part by many global initiatives aiming for net-zero driving an ethical incentive, but also runaway energy pricing underlining the commercial requirement to bring down energy use.

One of the key issues is that data centers require a continuous and stable supply of energy in order to operate. This is necessary not only to operate the servers, but also to maintain the core operational equipment to maximize operational efficiency and avoid downtime.



3%

Data centers consume about 3% of the world's electricity

Any outage or downtime can have significant financial repercussions for data center developers by way of damages payable to tenants who may be leasing the data centers, as well as direct losses to end-users.

## Options to increase sustainability and reduce carbon emissions

In the drive toward greener data centers, two key strategies emerge: the use of renewable power and the reduction of power usage through more efficient technology.

There has been a notable rise of co-location of data centers constructed with renewable energy-generating assets. In addition, following recent improvements in battery technology, energy storage options are being used more frequently to reduce the risk of outages and provide power supply stability while avoiding the need to draw energy from the grid at peak times.

For example, a major hyperscale developer in Belgium is working in partnership to develop the supply and optimization of a zero-emission energy backup system at a hyperscale data center. Relatedly, this increased co-location with renewable assets has focused attention on the location of data centers and whether natural resources can be harnessed as a renewable power source. Currently under development are projects in Australia running off of 100 percent solar power, and projects in the Nordics using geothermal and hydroelectric resources as their only or main source of power.



**In the drive toward greener data centers, two key strategies emerge: the use of renewable power and the reduction of power usage through more efficient technology**



However, switching the energy source to renewable energy is not a complete solution. With data center energy needs expected to continue to increase, together with the general demand for power across all sectors, draining the grid of renewable power will only cause shortfalls elsewhere.

This leads to the second option: Data center developers are looking to other technology to improve energy efficiency in the operation of data centers, such as alternative cooling technology.

Cooling data centers accounts for a vast portion of a data center's total energy consumption, and alternative methods of cooling is one of the key areas of focus in the challenge to improve energy efficiency. Various methods being tested and employed across the globe harness natural resources for cooling. For example, projects in Japan are testing the use of snow; sea water is being used in Finland; and geothermal techniques are in operation in locations such as Iceland and Norway.

Separately and while not a natural resource, there are also efforts to reduce energy usage through developments in the use

of liquid cooling and two-phase immersion cooling techniques.

### **Integrating energy solutions into the contracting structure**

To date, data centers have typically been let using a two-stage procurement process with separate contracts for the shell and core, and then the fit-out of the data center, in each case often on a design-and-build basis. Further ancillary works, such as cable routing or substation construction, are then often contracted for separately, with some but limited interface obligations with the main contractor.

However, for projects with energy-producing assets or energy storage assets constructed as part of or in conjunction with the data center, there is a trend toward multi-package construction contracts with enhanced integrated interface obligations between the power generation asset and the data center. In addition, as is more common with power-generating assets or energy storage assets, further focus on performance warranties for the data center (such as energy consumption and heat production) is developing.



## **There is growing pressure across the industry to become greener and more sustainable**

### **Shift toward greener data storage solutions**

The dependency and need for data storage is only increasing, and there is growing pressure across the industry to become greener and more sustainable.

At a corporate level, many key data center users have published sizeable targets for renewable energy sources for their data centers.

At a governmental level, growing energy consumption, in particular, by the sector has drawn increased scrutiny. Data center developers that are able to make the transition to renewable energy or utilize innovative technology developments to re-brand as efficient and sustainable energy users will anchor themselves as key players in this ever-growing industry.

# Tackling geopolitical challenges in Australia's construction industry through collaborative contracting

Amid the intricate landscape of Australia's construction industry and geopolitical challenges looming large, collaborative contracting emerges as a powerful strategy for stakeholders across construction projects in Australia, as **Joanne Emerson Taqi** and **Catherine Gu** highlight

The Australian construction industry is the nation's third-largest industry, contributing AUD 360 billion to the economy annually and representing 9 percent of Australia's GDP. The Australian government is set to spend AUD 248 billion between 2021/22 and 2024/25 on construction projects.

However, project owners, developers, contractors and consultants in recent years have faced a number of challenges. These include: significant changes in market conditions such as unprecedented increases in inflation and interest rates; supply and demand constraints at various levels of the construction supply chain; the cascading impacts of global geopolitical disruption; and the historic and residual effects arising from the COVID-19 pandemic. These conditions have created an increasingly complex infrastructure delivery environment in Australia, where project delays, cost overruns and distressed projects and contractor insolvencies are common.

As a result, there has been a marked increase in the number of public procurers proposing more collaborative forms of contracting and more collective approaches to managing project risks through the use of alliance and other hybrid relational forms of contracting. Government agencies are increasingly willing to re-open the terms of existing agreements to address changing market conditions,

and recreate balanced roles, where traditional risk allocation is no longer appropriate for the nature of the project or its risk profile.

## Conventional contracting

Conventional contracting is a term that typically refers to a contractual structure that fully "wraps" the project delivery risk at a single point of responsibility. It is characterized by a fixed-price contract with a limited list of price re-openers; hard obligations to achieve completion by a fixed completion date with limited exceptions for time relief; and a clear demarcation of risks and liabilities between the parties.

Most of the core delivery risks are allocated to the contractor with a structured claims regime in place — usually with time bars—under which the contractor is required to bring claims for time or cost relief.

A common criticism of conventional contracting is that it cultivates an adversarial environment between the project owner and

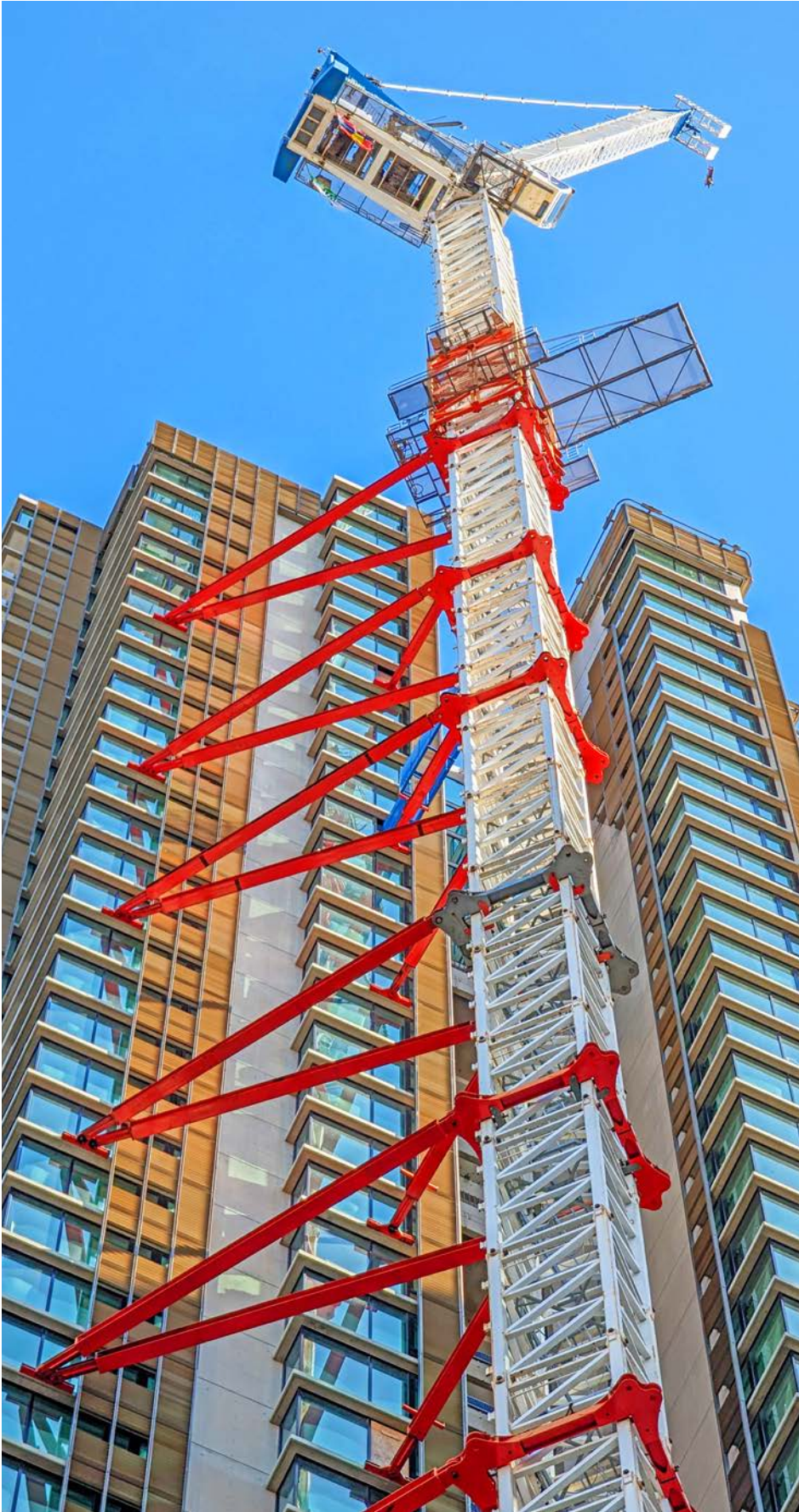
contractor who, because of the terms of the contract, are inherently misaligned in relation to both their own commercial interests and to the project. Critics argue that the conventional model unfairly transfers risk to the private sector, resulting in unbalanced risk allocation and a financially unsustainable industry.

The adversarial nature of the construction industry has been epitomized in Australia by the emergence of a claims-based culture and concerns regarding its connections to lagging productivity, project disruptions and cost overruns. Indeed, recent studies have shown that an average of 2.6 percent of project costs are spent on construction project disputes.

A number of Australian projects recently disclosed significant cost overruns and project delays, and the resulting media scrutiny and community frustration have rapidly exposed some of the limitations of conventional contracting, including in relation



**There has been a marked increase in the number of public procurers proposing more collaborative forms of contracting and more collective approaches to managing project risks**



to price certainty. In response, the New South Wales (NSW) state government has recently called for an independent review to evaluate the delivery models, cost overruns and project governance regimes adopted for the Sydney Metro City & Southwest project.

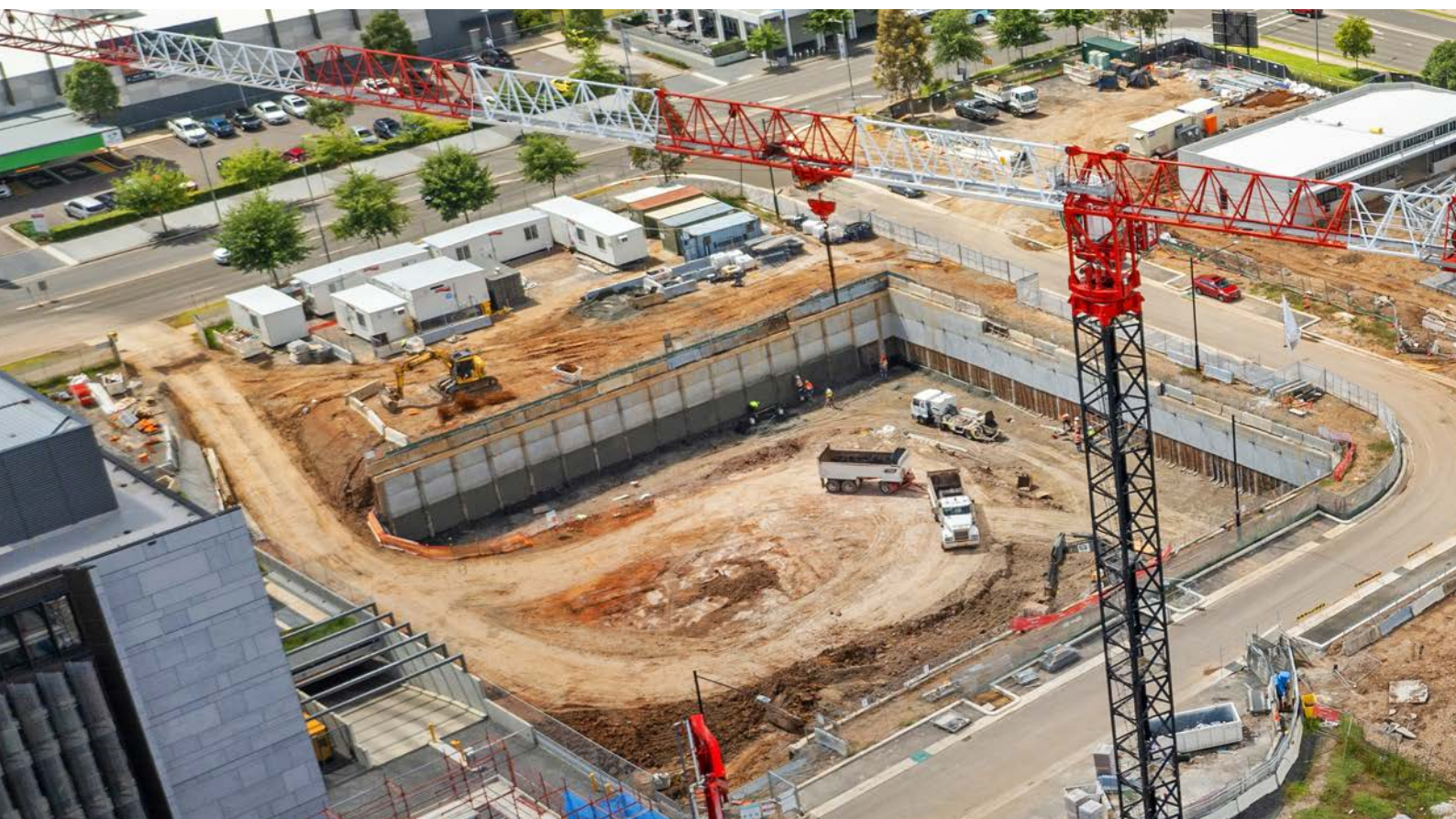
Various reasons have been put forward to explain the sources of cost overruns on major projects, such as major “optimism bias” during the initial planning stages, reduced risk appetite from contractors, significant price escalations for key materials and skilled labor, and owner-directed scope changes. These challenges have led to a heightened interest in the potential for collaborative contracting to mitigate some of the core risks and challenges faced by industry participants in the delivery of major projects in Australia.

### **What is collaborative contracting?**

The term “collaborative contracting” is a broad term used to signify a range of contract models including pure alliancing, partnering and incentivized target cost regimes, among other delivery methods. These models are generally thought to offer an alternative to conventional contracting, although they can also be used in conjunction with some aspects of conventional contracting.

At the heart of the collaborative contracting model is the desire to move away from an adversarial approach to contracting and toward a more long-term and relationship-based approach. This can help cultivate a “best for project” approach to the delivery of infrastructure projects.

In a collaborative contracting setting, the collective knowledge of project owners and contractors is leveraged during the pre-construction, planning and design development phase of a project. This may have the effect of minimizing the risk of scope inaccuracies or interface risks at an early stage and avoid the need for owner-directed scope-related variations during the delivery phase of a project. In a recent study it was noted that, in Oceania, a major cause of cost overruns on projects was changes in scope directed after contract execution.



Collaborative contracting projects also enable an integrated, whole-of-project approach, where integrated leadership teams have greater visibility and responsibility over the whole of a project rather than just individual work streams. Supporters of collaborative contracting argue that this drives efficiencies in scope development, methodology and programming as well as improving the management of interface risk, particularly for large, complex projects where various works are being delivered at the same time.

Collaborative contracting also means regimes are applied to ensure the early identification of issues or claims by parties prior to issues escalating into a dispute resolution forum.

### The alliancing approach

At one end of the collaborative contracting spectrum is “pure alliancing.” Here, a public sector agency will work collaboratively with multiple private sector participants under a single multi-



**AUD  
360  
billion**

The Australian construction industry is the nation's third-largest industry, contributing AUD 360 billion to the economy annually

party agreement that includes clients, contractors, engineering and design consultants, and key subcontractors to deliver a major capital asset. A pure alliancing model is generally reserved for the delivery of high-value high-risk projects where there are key unknowns that cannot be resolved during the business case or tendering stages of the project, prohibitive costs relating to the transfer of risks to the private sector, and an elevated need for parties to share knowledge and experience given the high degree of project complexity. This model has had limited application in Australia in recent years, with only modest usage on complex rail projects.

Pure alliancing contracts will typically comprise a single multi-party contract that is entered into between a project owner and non-owner participants (NOPs), which could include contractors, suppliers, designers and the operation and maintenance contractor. Project risks are shared between the project participants subject to

each participant's painshare cap—typically the NOPs' fee—and cost overruns are typically borne by the owner. NOPs' remuneration will comprise three key elements: direct and indirect project costs; the profit margin plus corporate overhead; and a performance-based payment adjusted to reflect the alliance's actual performance against target cost and other non-financial outcomes of the project.

Express obligations are typically included for parties to unanimously undertake best-for-project decisions to achieve project objectives and act in good faith. Alliance contracts sometimes include a requirement that each participant waive their entitlement to bring legal proceedings against the other participants arising from the performance of the alliance contract, except where there is “willful” default by one party.

### The partnering approach

Partnering is a more general concept in the Australian market,



with a variety of applications of collaborative contracting models. These can range from parties entering into non-binding commitments to work collaboratively as part of a strategic alliance, or otherwise entering into a formal contractual arrangement that prescribes each participant's role in the project and their capital commitments to the project.

A pure partnering model is uncommon in Australia, but it has seen some success in overseas markets including the US, Japan and the UK. It was first proposed by the Portland District of the US Army Corps of Engineers.

The degree of partnering required, and the legal ramifications of partnering for a project, will vary. Partnering may involve parties entering into a non-binding "Partnership Charter," which will govern the terms of the partners' working relationship. Partnering may also involve partners entering into a formal contract, typically a bespoke agreement, governing the role of



9%

The Australian construction industry represents 9% of the country's GDP

each of the partners in the delivery of a project, their respective partnership interests, capital contributions and return on equity investment and share of any project savings.

### The hybrid model

More commonly seen in Australia is the use of a hybrid incentivized target cost (ITC) model. This combines the concepts of an alliancing-style contract with the hard obligations and features of a fixed-price fixed-time contract. The ITC model has gained significant traction in recent years.

Under an ITC, the fixed-price concept of a traditional EPC contract is replaced with a target outturn cost (TOC), which is an agreed estimate of reimbursable costs, corporate overhead and profit required to perform the works.

During the delivery phase, adjustments will be made to reflect any project painshare or gainshare allocated. Painshare or gainshare amounts can be allocated between the parties in a variety of ways. Some

contracts split painshare evenly, up to a cap at which point the state incurs a higher threshold of "pain," while other contracts put no cap on contractor painshare. In a PPP context, an independent reviewer may be appointed to determine the project actual overturn cost (AOC) and assess the relevant painshare amount or gainshare amount payable to or by the contractor. To the extent the AOC exceeds the TOC by a set percentage, the state will then have a right to terminate the project deed or require the contractor to cure the default, subject to financiers' rights.

In an ITC, parties are required to comply with the terms of a "collaborative behavioral framework," which will typically require parties to work together to achieve project objectives and collaborate on meeting specified performance outcomes. This can include provisions requiring parties to promote a one-team culture and collaborate in a manner that delivers value-for-money outcomes for the project.

The contractor is also required to meet or exceed key performance indicators (KPIs) and key results area (KRA) targets, and will receive a bonus or deduction from its fees based on its achievement of these KPIs and KRAs. ITCs include mechanisms to allow for adjustments to the TOC, KRAs, KPIs and dates for completion for specified events.

Under an ITC, parties are required to be transparent in all dealings and share all relevant information. Pricing and costs are claimed on a fully open-book basis to enable auditing and assessment of amounts payable under the contract. Parties participate in integrated project control group teams to discuss and monitor the performance of a project.

ITCs ensure the early identification of issues and expedited alternative dispute resolution mechanisms through expert determination or a dispute avoidance.

### Shifting to collaborative contracting

In March 2022, independent statutory advisory body Infrastructure Australia released its “Delivering Outcomes” report, setting out a proposed reform pathway for the Australian construction market. One reform proposed was the abandonment of traditional delivery models and the adoption of collaborative-style contracts—focused on outcomes and long-term relationships—an antidote to the constraints faced by the construction industry.

The call for collaborative contracting by industry has seen some early success in NSW and Victoria, where there has been a marked increase in the number of projects procured with a collaborative-style contract in recent years. Examples of collaborative contracting can be seen in the Sydney Metro Stations, Systems, Operations and Maintenance project, and the Sydney Metro City & Southwest, both using ITC models.

Indeed, a 2022 progress report published by the NSW government observed that from 2021 to 2022, the use of collaborative contracts increased from 18 percent to 30 percent, and the use of traditional or PPP-style contracts declined from 82 percent to 70 percent. The NSW government has also, in recent years, made public commitments to procure and deliver more major projects through collaborative contracting models and ensure projects adopt risk-sharing mechanisms to incentivize parties and not place contractor viability at risk.

The increased acceptance of collaborative contracting by the Australian government reflects an acknowledgement of increased market expectation and domestic pressure for shared risk approaches to contracting, as well as an understanding of the potential benefits of non-traditional contracting approaches from a value-for-money and quality perspective. Contractors







## The renewed growth and interest in collaborative contract models in the Australian construction market reflects a pivot away from fixed-price and fixed-time contracts toward cost and risk-sharing regimes

have been increasingly enthusiastic in recent times in pushing back on conventional risk allocations and adopting more selective approaches to tendering. In response, public procurement agencies have been pivoting away from the familiarity of traditional fixed-price contracts and adopting more market-friendly models in order to attract high-quality bidding consortia.

One of the challenges that the Australian industry faces with the shift toward non-traditional contract models is the vast inconsistency

in the forms and approaches used by public procurement agencies. The standardization of collaborative contracts in the procurement of public infrastructure will therefore be an important next step in the maturation of the Australian construction market, although this will of course only arise after a period of market testing.

Some attempts to standardize approaches to collaborative contracting have included the adoption of the NEC4 suite by Sydney Water, GC21 by Health

Infrastructure NSW, and the development of bespoke alliance contracts by Transport for NSW, as used on the Barton Highway Upgrade Duplication project. Other initiatives have included the Department of Infrastructure and Regional Development's publication of the "National Alliance Contracting Guidelines – Guide to Alliance Contracting," which provides guidance to public procurers, owners and advisers on the theory and implementation of alliancing.

The Victorian state government has also announced initiatives to develop guidance materials for collaborative contracting and to prepare a suite of standard-form ITC and collaborative design and construct models. The confluence of public sector initiatives to standardize drafting and market expectations for more collaborative contracting have incrementally led to the emergence of market-standard terms, particularly in the ITC context, for mega rail projects in Australia.

### The future of collaborative contracting

The renewed growth and interest in collaborative contract models in the Australian construction market reflects a pivot away from fixed-price and fixed-time contracts toward cost and risk-sharing regimes. While the traditional delivery methods of contracting are likely to remain highly relevant, the significant changes in market conditions, supply chain disruptions and geopolitical uncertainty in recent years has meant a rise in interest in alternative forms of contracting as a way of resolving challenges faced by the Australian construction industry.

The structures, approaches and value-for-money proposition supporting collaborative contracting continue to be tested and refined in the Australian construction market. It will therefore be important for project owners in Australia to carefully assess whether a collaborative approach to contracting is suitable for the project in question.

Careful due diligence on the key project risks from a technical, legal and financial perspective will remain important for the purposes of considering how those risks may best be managed from a scoping and pricing perspective.



# Recent developments in English construction law

There have been a number of important developments in English construction law during the past two years, several of which relate to, or arose in the context of, building and fire safety—**Richard Hill** and **Jon Gilbert** examine their ramifications

**K**ey provisions of the Building Safety Act 2022, which was introduced in response to the 2017 Grenfell Tower fire, have come into force, with some of these having a retrospective effect. We have also seen new case law in relation to the duty of care in tort, liquidated damages, concurrent delay, collateral warranties and dispute resolution procedures, along with the publication of new standard-form contracts and clauses.

## The Building Safety Act and defective premises

The Building Safety Act 2022 (BSA) received Royal Assent on April 28, 2022, with a number of provisions coming into force on June 28, 2022 and others on October 1, 2023.

Key changes for the construction industry include the establishment of a new role of Building Safety Regulator within the Health and Safety Executive, which has taken on additional duties with respect to higher-risk residential buildings at least 18m (60 ft.) in height, or seven stories. Another is that the Building Act 1984 is amended to allow for additional obligations for higher-risk buildings during the design and construction phase, and increased penalties for a breach of building regulations.

The BSA also increased the scope of duty of care with respect to dwellings under the Defective Premises Act 1972 (DPA) and introduced special (extended) limitation periods in this regard. These changes came into force on June 28, 2022, and are of particular interest given that they are in part retrospective in their effect, as considered below.

Section 134 of the BSA introduced a new section 2A into the DPA to impose a duty on anyone who, in the course of a business, “takes on work” in relation to a dwelling to: “...see that the work is done in a workmanlike or (as the case may be) professional manner, with proper materials and so that as regards the work, the dwelling is fit for habitation when the work is completed.”

This expands the scope of the existing duty, which applied in relation to the provision of a dwelling, to works carried out on an existing dwelling.

Pursuant to section 135 of the BSA, the limitation period for claims under sections 1 and 2A of the DPA has been extended from six years to 15 years, or 30 years for claims under section 1 of the DPA, where such a claim accrued before June 28, 2022.

The changes are significant in that they have retrospective effect—the limitation period for claims under section 1 of the DPA accruing before June 28, 2022 is treated as if it had always been 30 years. In practice, this means that an action that was previously considered statute-barred could now be very much alive.

A safeguard provides that a claim is to be dismissed where it would breach the defendant’s rights under the European Convention on Human Rights. Most likely this would be the right to a fair trial and it is possible to see how this could be raised as a defense, for example where a party has destroyed critical exculpatory documents on the understanding—which may well have been correct at the time—that any claims against it were statute-barred.



**June 28,  
2022**

The Building Safety Act increased the scope of duty of care with respect to dwellings under the Defective Premises Act 1972 (DPA) and introduced special (extended) limitation periods in this regard. These changes came into force on June 28, 2022

## Liability in tort, and claims under the DPA in the wake of the BSA

In a judgment handed down in July 2023, the Court of Appeal considered the point in time at which a cause of action accrued in tort against designers of a defective building in circumstances where the defect caused no immediate physical damage.

The case, *URS Corporation Ltd v BDW Trading Ltd*, is significant as it establishes that, in such a scenario, the cause of action will arise on completion of the building rather than when the defect is discovered. This is consistent with a claim in contract, for which the cause of action normally arises on practical completion. Although the dispute arose in the context of post-Grenfell building safety, the ruling will have implications for construction defect claims more widely.

The case also confirms the retrospective effect of the changes made to the DPA by the BSA.

The dispute concerned two residential developments that had been developed by BDW. Practical completion occurred at the latest by



**The newly amended BSA will allow for additional obligations for higher-risk buildings during the design and construction phase, and increased penalties for a breach of building regulations**

2012 and, by 2015, BDW had sold the apartments on long leases and transferred its freehold interests.

Following the Grenfell Tower fire, BDW carried out a series of investigations and, in 2019, discovered defects with the structural design, which had been carried out by URS. However, they had not resulted in any physical damage. BDW paid for remedial works to be carried out and then brought a claim in the tort of negligence against URS to recover the costs. Any claim in contract was presumably statute-barred.

The Court of Appeal was asked to determine various preliminary issues, including when the cause of action accrued and whether BDW could in fact file a claim under the amended DPA.

First, the court confirmed that physical damage was not needed for a claim to arise in tort. In relation to when a cause of action would arise, after extensive deliberation of the relevant authorities, the court concluded that: where there is physical damage, the cause of action accrues when the physical damage occurs, regardless of the claimant's knowledge of the physical damage or its discoverability; and where there is no physical damage, the cause of action accrues on completion of the building, regardless of the claimant's knowledge of the defect.

Accordingly, the cause of action arose (at the latest) when practical completion occurred.

The issue of limitation itself—whether BDW's claim was nonetheless statute-barred—which the court described as “the ghost at the feast,” did not fall within the scope of the preliminary issues.

A separate issue in the case was that BDW had sought to amend its claim to take advantage of the longer limitation period for bringing a claim under section 1 of the DPA, as introduced by section 135 of the BSA.

URS argued that BDW could not do so, as it had already commenced litigation proceedings before June 28, 2022, when section 135 of the BSA came into effect. The court rejected URS's argument, noting that the retrospective effect of section 135 could not be any clearer and that there was no carve-out for ongoing litigation.

The court also confirmed that a duty can be owed to a developer under section 1 of the DPA, notwithstanding that the developer itself might owe such a duty to subsequent purchasers.

Permission to appeal the Court of Appeal's ruling has been granted, so we may see some or all of the above matters being reconsidered by the Supreme Court.

### **Unenforceable liquidated damages clauses**

The courts have also recently considered whether an unenforceable liquidated damages (LDs) provision can act as a cap. The Technology and Construction Court (TCC) handed down judgment in July 2022 in the case of *Buckingham Group Contracting Ltd v Peel L&P Investments and Property Ltd*, ruling on whether an LDs clause, which was found to be ineffective, could nonetheless cap general damages for delay.

Although the court's observations on this point were technically made in passing, they add support to the position that ultimately it is a matter of contractual interpretation whether an unenforceable LDs provision can act as a cap. While enforceability should not be an issue where LDs provisions are well drafted and properly considered, parties should nonetheless ensure that any cap is worded in such a way that it is clear whether it is to limit general damages for delay should the LDs regime be rendered unenforceable.

Peel engaged Buckingham as the contractor on a project to construct a manufacturing plant. The contract was based on the JCT Design and Build Contract 2016 but contained bespoke provisions dealing with LDs with respect to milestone dates that included a “cap on maximum LADs” in the amount of £1.9 million.

The works were delayed and Peel sought to levy LDs against Buckingham. In response, Buckingham argued that the LDs provisions in the contract were void and unenforceable due to uncertainty, and that any remedy with respect to general damages was capped in the amount of £1.9 million.

The court concluded that the LDs provisions were certain and enforceable. However, it went on to consider whether, had they



not been, they could have had the effect of capping general damages for delay at £1.9 million.

The starting point was that, if an LDs provision was void, then it was wholly unenforceable. However, the next step was to ask whether, on a proper construction of the clause in question, it also operated as a parallel general limitation of liability provision, which could be enforced even if the LDs were void or penal.

In the present case, the language of the cap (“on Maximum LDs”) was clear that it only applied to LDs. It was also relevant that it was contained in a schedule exclusively concerned with milestone dates and applicable LDs. Accordingly, the court concluded that it would not have had the effect of capping general damages for delay.

### Concurrent delay

In its October 2022 judgment in *Thomas Barnes & Sons plc v Blackburn with Darwen Borough Council*, the TCC found that a contractor risk event and an employer risk event were concurrent causes of delay as either event, had it occurred by itself, would have delayed completion.

This case has significance as, on one view, the court’s reasoning appears to indicate a departure from what is sometimes referred to as the “first in time” approach, being that where, for example, an employer delay occurs after the commencement of the contractor delay, the only effective cause of delay is the contractor risk event. This is the approach recommended in the 2nd Edition of the Society of Construction Law’s *Delay and Disruption Protocol*.

The council appointed Thomas Barnes as the main contractor on a project to construct a bus station, including an office hub area. The works were delayed and the council ultimately terminated Thomas Barnes’ employment and appointed another contractor.

A key issue before the court was Thomas Barnes’ claim for an extension of time due to delays caused by problems with steel deflection, for which the council was responsible, in circumstances where, during this period of delay, delays arose with respect to the roof covering works for which Thomas Barnes was responsible.



The court determined that, during a certain period, the steel deflection issue and the roof covering issue were concurrent causes of delay. This was because both remediation of the steel deflection issue and completion of the roof coverings were essential for the hub finishes to be meaningfully started.

The court observed: “It is not enough for the claimant to say that the works to the roof coverings were irrelevant from a delay perspective because the specification and execution of the remedial works to the hub structural steelwork were continuing both before and after that period of delay. Conversely, it is not enough for the defendant to say that the remedial works to the hub structural steelwork were irrelevant from a delay perspective because the roof coverings were on the critical path.”

Applying established principles, Thomas Barnes was entitled to an extension of time for the period of concurrent delay but not additional costs.

### Collateral warranties and the Construction Act

In *Abbey Healthcare (Mill Hill) Ltd v Simply Construct (UK) LLP*, the Court of Appeal held that a collateral



## December 2022

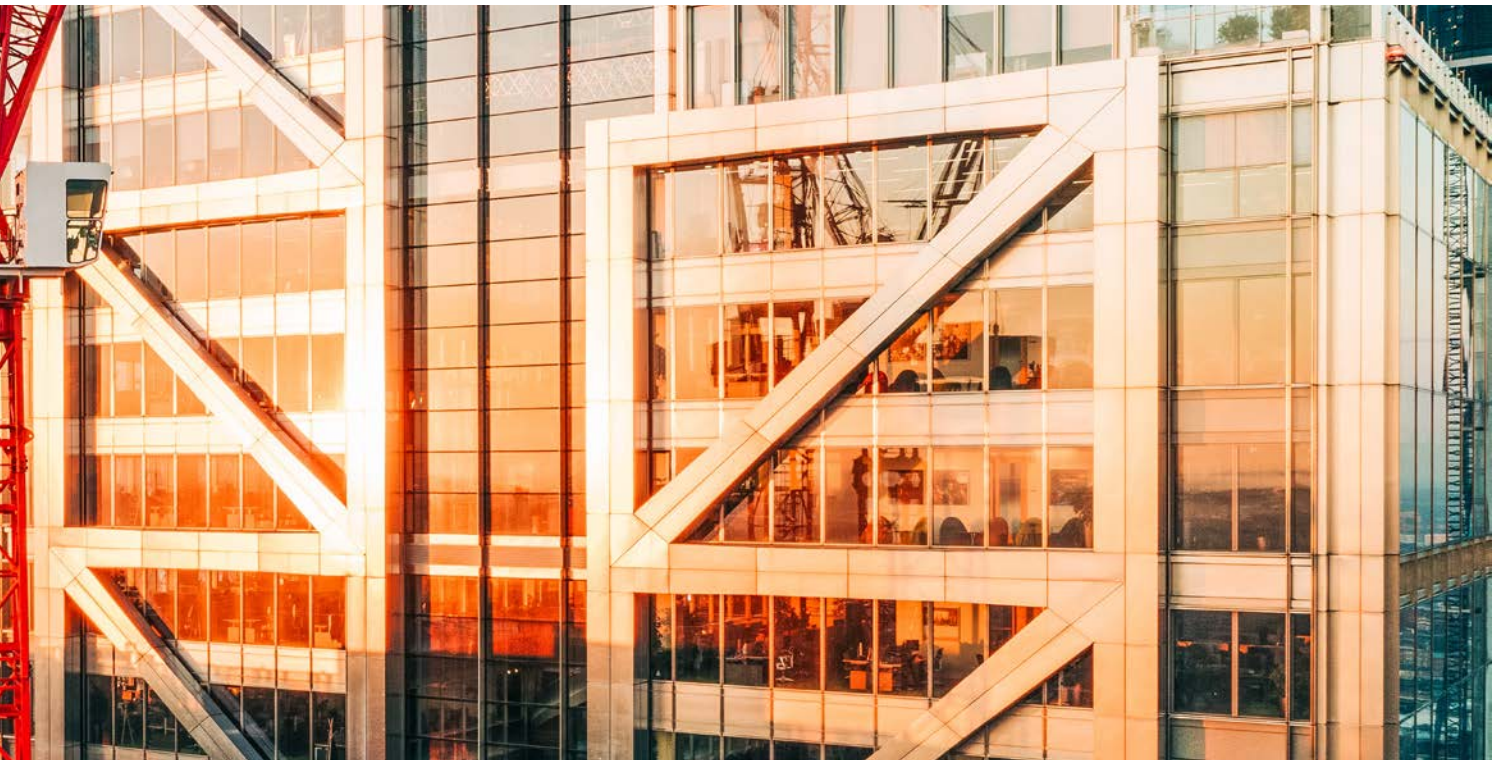
The FIDIC published a series of amendments to its 2017 suite of standard-form construction contracts (the Red, Yellow and Silver Books)

warranty was a construction contract for the purposes of the Housing Grants, Construction and Regeneration Act 1996 (HGCRA) and therefore contained a statutory right to adjudication.

The case is significant in that it expands the circumstances in which the HGCRA, and therefore the statutory right to adjudication, will apply to collateral warranties. While the TCC had previously ruled in a 2013 case that the HGCRA had applied to a collateral warranty, in that case the warranty included the crucial words “acknowledges and undertakes.” Such wording was not present in the collateral warranty in *Abbey*, and the absence of such wording in a collateral warranty had until now been regarded by many as meaning that the HGCRA would not apply.

The case also makes it clear that a collateral warranty can be subject to the HGCRA even if it was executed several years after the works were completed.

Simply Construct was engaged to build a care home and, some four years after completion of the work, provided a collateral warranty to Abbey as tenant. Under the warranty, Simply Construct warranted that it “has performed and



## **A collateral warranty can be subject to the the Housing Grants, Construction and Regeneration Act 1996 even if it was executed several years after the works were completed**

will continue to perform diligently its obligations under the contract.”

Fire safety defects were discovered in the care home, and Abbey brought adjudication proceedings under the collateral warranty to recover remedial costs. Abbey was successful in the adjudication but, when it sought to enforce the adjudicator’s decision, Simply Construct argued that the adjudicator had lacked jurisdiction.

The HGCRA provides parties to a “construction contract” (defined as an agreement for the carrying out of construction operations) with a statutory right to refer disputes to adjudication.

The majority of the court concluded that it was possible for a collateral warranty to be a construction contract as

defined by the HGCRA. An agreement for the carrying out of construction operations was a broad expression that went beyond the primary building contract.

Ultimately, it would depend on the wording of the warranty in question. The court distinguished between a warranty that related only to a past state of affairs, and a warranty that the contractor was carrying out and would continue to carry out construction operations to a specific standard. The former was more likely to be an agreement for the completion of construction operations.

As the warranty contained a promise for the future—that Simply Construct would carry out the construction operations in accordance with the building

contract—then, as a matter of common sense, it was an agreement for the completion of construction operations and therefore a construction contract.

The court said that the fact that the warranty had been executed long after completion of the work was of little relevance to its categorization, as it contained future-facing obligations and was retrospective in effect; and it would be counter-intuitive as a matter of statutory construction if the date of execution impacted whether the warranty was a construction contract.

Permission to appeal has also been granted in this case, so again we may see some of the above points reconsidered by the Supreme Court.

### **Failure to comply with dispute resolution procedure**

In *Kajima Construction Europe (UK) Ltd v Children’s Ark Partnership Ltd*, handed down in March 2023, the Court of Appeal considered whether proceedings that had been brought in breach of a contractual dispute resolution provision should be struck out or stayed, in circumstances where the limitation period had since expired.

While technically obiter, the case confirms that a stay will be the usual but not automatic relief granted where proceedings are brought in breach of a contractual dispute resolution provision, and that limitation will be a relevant but not decisive consideration.

Children's Ark had engaged Kajima to carry out redevelopment works at a hospital. The contract provided that no claim could be brought against Kajima after 12 years from completion of the works. It also contained a requirement to refer disputes to a liaison committee for resolution prior to commencing litigation.

Shortly before the limitation period was due to expire, Children's Ark began litigation proceedings against Kajima in relation to alleged defects in the works relating to fire safety. Kajima argued that as Children's Ark had failed to refer the dispute to the committee, the litigation should be struck out.

The court held that the committee procedure set out in the contract was unenforceable for uncertainty. However, of wider relevance is that the court went on to consider whether, had it been enforceable, the judge at first instance would have been correct to exercise her discretion to order a stay of proceedings.

The judge had described a stay of proceedings as the "default remedy" where a party commenced proceedings in breach of a contractual dispute resolution clause. The Court of Appeal did not consider it to be a default remedy in the sense of an automatic or inevitable relief, but agreed that it would be the "usual" remedy.

It is notable that counsel were unable to find any case where proceedings brought in breach of a contractual dispute resolution clause were struck out, as opposed to being made the subject of a stay.

The court also considered that the judge had been correct to take the issue of limitation into account. In particular, it was not a case where the limitation period was in danger of being missed through indolence or incompetence. The reason why such a long time had elapsed since the original construction works had been carried out was because of the tragedy at Grenfell, the consequential survey,

the discovery of alleged defects and the ongoing remedial works.

While the deprivation of a limitation defense for Kajima was an important element of the balancing exercise, it alone was not decisive.

### **Developments in standard-form contracts**

In December 2022, the FIDIC published a series of amendments to its 2017 suite of standard-form construction contracts (the Red, Yellow and Silver Books) and incorporated them into reprinted versions of the contracts.

Most of the amendments are relatively minor, but notable changes include increased clarity around what constitutes a "matter" or "matter to be agreed or determined," which are not subject to the claims process under clause 20. The FIDIC also narrowed the circumstances in which a claim can be referred directly to the Dispute Avoidance/Adjudication Board (without first being referred to the engineer or employer's representative); and the definition of an "Exceptional Event" (the term used for a force majeure event) now expressly requires the event to be exceptional.

A reprint of the FIDIC Emerald Book (for underground works) was later published in November 2023, in large part to incorporate the changes to the

Yellow Book on which it is based.

In April 2023, the Institution of Chemical Engineers published a standard-form engineering, procurement and construction management (EPCM) contract, known as the Blue Book.

The EPCM model, under which the employer enters into individual contracts with works contractors and suppliers, and separately appoints an EPCM contractor to procure and manage the contracts on its behalf, has become increasingly popular in recent times. The FIDIC has also announced that it is working on a standard-form EPCM contract.

In July 2022, the NEC published new climate change clauses (option X29) for use with its standard-form contracts. The clause makes a provision for climate change requirements with which the contractor has to comply, a climate change plan setting out the contractor's strategy for achieving the climate change requirements and performance targets subject to financial incentives.

Finally, the JCT is due to update its suite of standard-form contracts in 2024, starting with the Design and Build Contract in April. Among other things, the changes are expected to reflect UK legislative developments, including the Building Safety Act 2022 and the Corporate Insolvency and Governance Act 2020.



**The EPCM model, under which the employer enters into individual contracts with works contractors and suppliers, and separately appoints an EPCM contractor to procure and manage the contracts on its behalf, has become increasingly popular in recent times**





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